

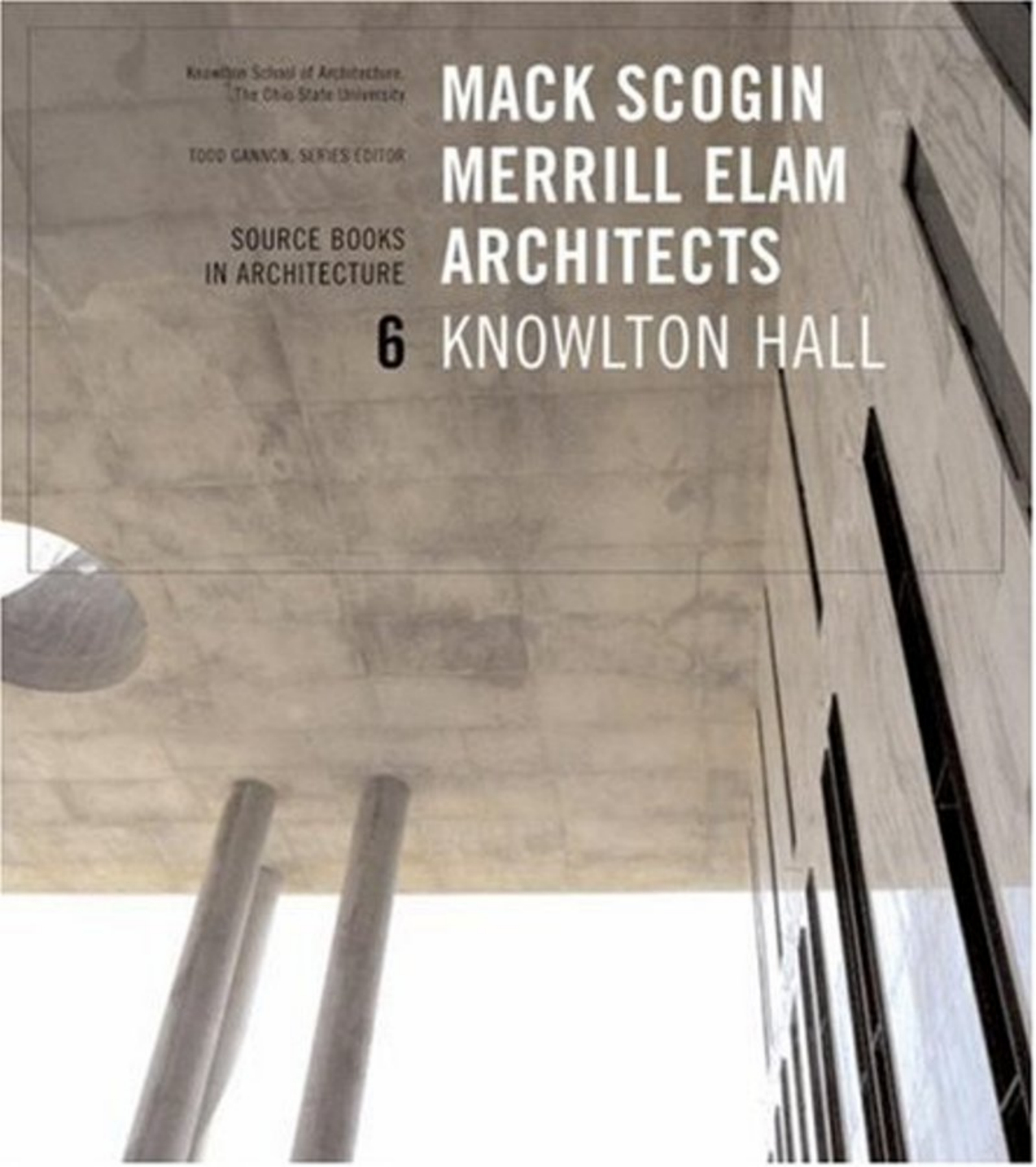
Knowlton School of Architecture
The Ohio State University

TODD CANNON, SERIES EDITOR

SOURCE BOOKS
IN ARCHITECTURE

MACK SCOGIN MERRILL ELAM ARCHITECTS

6 KNOWLTON HALL



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The Ohio State University

MACK SCOGIN MERRILL ELAM

TODD GANNON, SERIES EDITOR

KNOWLTON HALL

**SOURCE BOOKS
IN ARCHITECTURE**

Columbus, Ohio

Todd Gannon, Margaret Fletcher, Teresa Ball, Volume Editors

6

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SOURCE BOOKS IN ARCHITECTURE

Following the example of music publication, Source Books in Architecture offers an alternative to the traditional architectural monograph. If one is interested in hearing music, he or she simply purchases the desired recording. If, however, one wishes to study a particular piece in greater depth, it is possible to purchase the score—the written code that more clearly elucidates the structure, organization, and creative process that brings the work into being. This series is offered in the same spirit. Each Source Book focuses on a single work by a particular architect or on a special topic in contemporary architecture. The work is documented with sketches, models, renderings, working drawings, and photographs at a level of detail that allows complete and careful study of the project from its conception to the completion of design and construction.

The graphic component is accompanied by commentary from the architect and critics that further explores both the technical and cultural content of the work in question.

Source Books in Architecture was conceived by Jeffrey Kipnis and Robert Livesey and is the product of the Herbert Baumer seminars, a series of interactions between students and seminal practitioners at the Knowlton School of Architecture at The Ohio State University. After a significant amount of research on distinguished architects, students lead a discussion that encourages those architects to reveal their architectural motivations and techniques. The students record and transcribe the meetings, which become the basis of these Source Books.

The seminars are made possible by a generous bequest from Herbert Herndon Baumer. Educated at the Ecole des Beaux-Arts, Baumer was a professor in the Department of Architecture at The Ohio State University from 1922 to 1956. He had a dual career as a distinguished design professor who inspired many students and as a noted architect who designed several buildings at The Ohio State University and other Ohio colleges.

1994

Austin E. “Dutch” Knowlton pledges \$10 million to fund a new home for the School of Architecture.

1997

Knowlton columns are erected at Ives Hall site.



1998

Mack Scogin Merrill Elam Architects are selected as design architects. Wandel and Schnell Architects are selected as associate architect.

1998–99

Preliminary designs are prepared for schemes A and B, an addition to Ives Hall and a replacement of Ives Hall, respectively.

3 December 1999

Scheme C is completed.



2000

Knowlton pledges an additional \$6 million.

January–February 2000

Studies of exterior cladding in glass, slate, and terra cotta are performed.

1 March 2000

Schematic design is completed.

6 June 2000

Construction documents are completed.

17 October 2000

Design development is completed.



July 2001–January 2002

Revisions for marble exterior cladding, document addenda and alternatives, and project funding are secured.

DATA AND CHRONOLOGY

KNOWLTON HALL

Columbus, Ohio

Client:

Austin E. Knowlton School of
Architecture, The Ohio State
University

Site:

The northwest entrance to the main
academic campus, 1.91 acres

Area:

175,386 gross square feet
196 square feet/person

Volume:

3,046,550 cubic feet
3,102 cubic feet/person

Program:

615 students in architecture
180 students in landscape
architecture
96 students in city and regional
planning
74 faculty members, with adjuncts
and visitors
17 staff/administration members

Data:

Columns, floors, and inclined
planes: post-tensioned, cast-in-
place concrete
Load-bearing walls: cast-in-place
concrete
Non-load-bearing walls: steel stud
framing
Windows: aluminum glazing system
on structural steel frames
Enclosure: white marble panels in
rain screen "shingle" system
Guardrails: steel-and-glass panels

Project Funding:

\$33 million state and private funds
\$26 million construction budget
\$148.24/square foot

February 2002

Project bid and awarded.

April 2002

Groundbreaking

June 2002

Construction begins.

July 2002

Ives Hall is demolished.

August 2002

Site excavation begins.

December 2002

Elevated concrete work begins.



September 2003

Cladding work begins.

October 2003

Topping out ceremony

November 2003

Interior finishes and MEP work
begins.



February 2004

Building is enclosed.

June 2004

Construction is completed.

September 2004

Classes begin.

October 2004

Building is dedicated.



Notes

Delivered at Exploiting the Program: A Conference at the Knowlton School of Architecture, November 6, 2004

Open discourse in the broad community of architecture empowers the individual within the collective and substantiates architecture as a public act. Discourse enables possibility, and possibility is open-ended. Possibility as provocation is optimistic. Optimism is challenged by an architectural discourse of an inherently infinite nature. The conditions around the realization of architecture are always in flux, and while each architectural decision or condition may reduce the possibility of other architectural decisions or conditions, it may liberate others.

A building for a school of architecture can aspire to promote the project of architecture by encouraging open discourse and by raising the question of its own physicality. Such a building, by making itself a tool of the pedagogy, makes itself vulnerable. As a forum for architectural debate and criticism and as an armature for thinking and making, the weaknesses and failures of the building are as informative as its strengths and successes. Knowlton Hall was conceived through this lens of aspiration and vulnerability.

Under Rob Livesey's care, a rich, subjective text evolved that particularized the project. Relying on these textual signifiers and the resources from within the project—an enormously fertile territory—and working freely outside the bounds of any hyper-described extra-architectural

theory, the design sought an embodied strength; a strength born of its contextual and circumstantial complexity.

From the outset, the pragmatics of the realization of the building were weighed against authority over form and affect. In the end, the building ekes out both form and space realized from a limited set of tectonic systems. The building is a complex container where form is experiential—something to be lived in and used up—and where systems are tweaked to the limits of their capacity and affordability.

Architecture as a dialog between movement and stasis is a frustration that reflects the tension between the calm-seeking archaic requiring stillness and pre-knowledge and the action-seeking (r)evolutionary requiring invention and curiosity. Extreme legibility of either undermines the perplexing and compelling condition of architecture. Insistence diminishes the richness of conceptual and material plasticity. The exploration of the archaic and the (r)evolutionary in architecture is a continuum seeking a transcendental condition. Like a game of the exquisite corpse, it is the unknowing, the blindfolding that invigorates the outcome. The architect's hand is always partially informed by the unknowable. To know that you cannot know, exactly, and to prepare for and relish in this unknowing is a profound lesson for a building for a school of architecture to convey. This is the ultimate aspiration of Knowlton Hall. The joy is in the search.

—Mack Scogin and Merrill Elam

TG: Todd Gannon, Editor, Source Book in Architecture

MS: Mack Scogin, Principal, Mack Scogin Merrill Elam Architects

ME: Merrill Elam, Principal, Mack Scogin Merrill Elam Architects

DY: David Yocum, Project Architect, Mack Scogin Merrill Elam Architects

BW: Bob Wandel, Principal, Wandel and Schnell Architects, Associate Architect

RL: Robert Livesey, Director, Knowlton School of Architecture

CONVERSATIONS WITH MACK SCOGIN AND MERRILL ELAM

Compiled and edited by Todd Gannon

The following was extracted from a series of interactions that took place between Mack Scogin, Merrill Elam, and the students and faculty of the Knowlton School of Architecture during the 2003–2004 academic year.

ON SEEING

MACK SCOGIN: Rather than begin with a chronological background, we have chosen instead to talk with you first about the way we look at the world, the way we see. There is a distinction—how we see as opposed to what we see. I believe that how we see has everything to do with our architecture. I am constantly fascinated by how Merrill sees. The difference between our eyes keeps us energized and optimistic about the work.

MERRILL ELAM: What Mack makes after he sees amazes me. It is important to sustain the unexpected and the discovered with whomever you are working because design is about exploration and

invention and some level of unknowing. When Mack takes a thing and turns it over, literally or conceptually, the unexpected happens. This is a regular occurrence, so I am surprised and delighted fairly often.

MS: We rarely talk about this collection of images. They certainly inform the work, but we have never stopped to formally analyze that relationship. Having said that, I believe that we concern ourselves with observation and seeing because it forms a continually growing resource catalog of visual materials and references. The catalog forms the basis of a working conversation in which the restless use of analogy is productive. “It is like” is a start. “It is the same but different” is better. When the “different” transforms into its own proposition then some newness may emerge. The analogy without the transformation only tells you what is or is not; the transformation leads to what might be. The physical outcome forms itself before it is named.

The naming allows the conversation to begin again. Visual memory, as with conceptual or theoretical strategies brought to architecture, operates as an analogous game of superimposition and succeeds or fails to the degree to which it is finessed or employed.

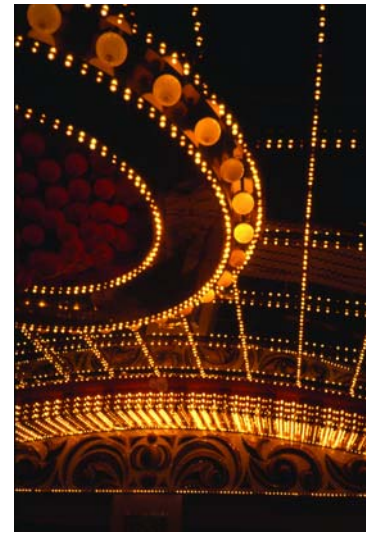
ME: Aside from how we see, there is diversity in what we have seen and recorded. Thousands of slides in black notebooks, plastic bags, and little white boxes attest to persistent effort or habit.

We use 35mm slide film in small Olympus cameras. These cameras, although technologically ancient, have exceptionally wide lenses which make them friendly to architecture. We use them in the simplest way to make “snapshots” . . . quickly and in multiples. It is always a mystery what is actually on the film . . . many not-so-good images and then an occasional exceptional moment. Editing and culling is a major part of the exercise. We simply enjoy the light through the film and the saturated color and

the compositions within the frame. Arranging the images, making juxtapositions, provocative comparisons, and narrative continuities are generally Mack’s work. We discovered in the publication *9H—On Continuity*, in an article by Luis Moreno Mansilla, that Sigurd Lewerentz had used the camera in a similar manner, or at least to record in sketchbook fashion, images or things of interest to him. We felt a certain sense of relief or encouragement that “snapshot sketching” was a legitimate way of working.

We are gradually shifting to digital cameras, but there is an enormous sense of loss around the mysteries contained in the little metal canisters—immediacy and blatancy in lieu of patience and anticipation.

MS: We have given lectures beginning with twenty five or thirty minutes of silence, just showing images.



LEFT: Michelangelo Buonarroti, *Moses*, San Pietro in Vincoli, Rome, Italy, c. 1513–16

RIGHT: Circus Circus Casino, Las Vegas, Nevada, 1968

MACK SCOGIN: The image on the left is Michelangelo's Moses, in the church of San Pietro in Vincoli, in Rome, and on the right is the Circus Circus Casino in Las Vegas. In the early years, we were not able to travel much. We had to wait until we earned the frequent flyer miles to get to Las Vegas. We went to Rome for the first time when we won a trip to Europe in a raffle.

In Las Vegas we stayed at Circus Circus because we realized it was probably going to be the silliest place to stay. This was before the current renaissance of Las Vegas. It was just as tacky and fabulous as we thought it was going to be. However, it was also incredibly depressing to see the monotony of the activity and the numbness of the people. All day and all night they just put coins in little machines or sat at tables, with this strange expression of, at once, desire and depression. We had a really odd reaction to it.

What struck us, and the reason we like to combine these images, was the strange similarity of the Rome and Las Vegas experiences. The interior of the church is dark, and in order to see Moses you put a coin in a little metal box, which activates the lights for a short time. When the time expires and the light goes dark, everyone scurries around to see who is going to put the next coin in the machine. This game, silly as it is, somehow exhilarated us so much more than coins in the box at Las Vegas.



LEFT: Slave quarters on southern plantation, Alabama



RIGHT: Cemetery, Alabama

MERRILL ELAM: The slide on the left is from south Alabama. I was a visiting critic at Auburn University, and it was the first time I had been asked to conduct a seminar. I had not been reading or writing anything that I thought would sustain a meaningful semester's work, so the seminar turned into a series of field trips. Everyone had to bring a camera, and everyone had to collect things during the semester. One of the places we visited was a plantation, and this is what was left of a slave quarters. By the end of the semester, we began to understand how each one of us was seeing and recording differently. The collected items became a room-size three-dimensional installation with images projected through...a collective diary of the seminar conglomerated from individual efforts.

* *

We happened upon this little cemetery in Alabama. The part to the right—the manicured section—was the white side of the cemetery, and the part to the left was the black side of the cemetery. It was a very poignant thing. The gravity of all of our cultural biases just rushed in. It was a tactile and powerful experience. For a brief moment our thoughts were focused entirely on our relationships to people different from ourselves, yet not so different from ourselves.



LEFT: Corner Cafe, Cartersville, Georgia
RIGHT: Poor Girl's Place, Houston, Texas

MACK SCOGIN: The image on the left is one of my favorite buildings, the Corner Cafe in Cartersville, Georgia. Can you imagine making anything so wonderful, to paint that gutter white all the way to the window edge and then paint it red? It is just a marvelous piece of free-spirited work. These are conscious decisions by someone who has an intuitive understanding of making, of expression, of exactitude.

I find in this building similarities to the work of the painter Francis Bacon, who takes familiar things and through sheer expertise in his medium, by knowing how to paint, transforms them into something that is at once beautiful and horrifying. Both exhibit amazing technique.

* *

The tire shop is Poor Girl's Place. Look at that door. One door shuts and the grate shuts over it. That tire hanging on the window. Pretty good—conscious decisions and instinctive moves that produce a unique and rich moment of raw completeness, evenness, and integrity.



LEFT: Cemetery, Verona, Italy

RIGHT: Ocean Drive, South Beach, Miami, Florida

MACK SCOGIN: This is a cemetery in Italy on the left, and South Beach, Miami, on the right. South Beach architecture was built for the moment. It is amazing how enduring architecture can be, even if that is not the initial intention. This endurance is a characteristic of architecture born true to its time, immersed in its particular cultural and tectonic moment.



LEFT: Francesco Borromini, Palazzo Spada, Rome, Italy, 1653

RIGHT: Jacobo da Vignola, Villa Giulia, Rome, Italy, 1551–53

MACK SCOGIN: That is Borromini's Palazzo Spada in Rome on the left, an extraordinary perspectival deformation of space and scale. Without Merrill standing there you would think it was a huge structure. Villa Giulia, on the right, is completely ruined now. It is cleaned up and made just perfect. It looks like a suburban McMansion.

MERRILL ELAM: McMansions should be so great!



LEFT: Louis Kahn, Salk Institute for Biological Studies,
San Diego, California, 1959–66, view of courtyard
RIGHT: Truck stop, Monteagle, Tennessee



MACK SCOGIN: This is one of the great architectural spaces in the U.S.—the void space at the Salk Institute. It is inexplicable. You cannot take a picture of it. It is a great lesson in the power of the experience of absence. Next to it is an image that remains one of my favorite slides. Merrill took it at a truck stop on a mountain in Tennessee. We were sitting in a booth, but she is looking out the window with the reflection of both the inside and the outside of the view collapsing on a single plane.

What it tells me is that she sees the background, middle ground, and foreground simultaneously. It is a bit of a trick—that way of seeing. I am certain it has an effect on our work.

TODD GANNON: What struck me in this series of images was this deliberate contrasting of what I will call “high” and “low.” Rome versus Las Vegas. Classical architecture versus vernacular fishing shacks, etc.

What I found interesting was that each contrasting pair produces an equally convincing equivalence. It seems to me that your work often employs similar juxtapositions. Most of the projects, though at first seeming quite playful or quirky, are disciplined by a formal and organizational rigor that might seem antithetical. I am not sure how to formulate that observation into a question, but for me, one of the keys to your work is the orchestration of that collision of high and low. Is that what you set out to do with these images?

MS: I am not sure it is that specific, but I would not disagree with the fact that the contrasts in these images in the end get fused into one thing. I value the two ends of the spectrum. On the other

hand, your statement implied that we have decided something.

In a lecture a few years ago we started with a story about a ride we had with my daughter’s children. To say that they are precocious is an understatement. We were looking for my nephew’s house, and every house we passed, Matthew would say, “That’s it, that’s it, that’s it,” and we would say “No, that’s not it.” Finally, Merrill turned to Matthew and said, “You’re just anxious.”

His reply was, “No, I’m just guessing.” Unprovoked, his six-year-old sister, Shannon, chimed in, “Well, I’m both anxious and guessing.”

We tell that story to frame how we feel about looking at architecture and at our own work, and about how we look at these slides with regard to our projects. One aspect of architecture that motivates and excites us most is that it requires the suspension of judgment.

Every building we do, every time we look at these slides, any time that we walk out the door,

we are in that world of suspension, and it is fascinating. We are puzzled by architects who position themselves narrowly. The slides are a reminder of the complexity and richness of the world. We want to remain with innocent eyes. We want to remain a bit confused, or anxious, or guessing. If this can keep our work fresh and moving and a bit puzzling, then that is acceptable.

This characteristic is also our albatross. Such a method or attitude makes our work extremely difficult to pin down and our position difficult to establish. It can make hiring us extremely difficult.

TG: How do you respond to the effort of critics that try to pin you down?

ME: I am not sure that we do. We just keep on making architecture.

TG: Do those critical investigations change the way that you make architecture?

ME: That others are willing and able to delve into our work as a critical project is very important to us, and we are glad to have the work support such a level of discussion, but we seldom take on that discussion ourselves. We pay attention to the criticism, but we do not necessarily respond directly. We like to think that the critical dialog occurs within the work itself.

MS: Merrill is right. Our response is no response, at least not vocally.

This is perhaps unusual in today's intellectual climate. Many of our colleagues work in a way that lays out a very specific intellectual or theoretical position with regard to an architectural investigation. This type of intellection feeds their imagination and pushes their work forward. Working in that manner establishes a basis that allows Peter Eisenman or Bernard Tschumi, for example—two architects that we greatly admire and appreciate—to respond more directly to criticism and analysis.

This is a very important point for students to understand. In architecture, as well as in the other creative arts, it is crucial to be dedicated to moving your work forward. Direct engagement in extra-architectural discussions is one way to do it.

TG: What drives your work forward? Though you may not set out in your work to directly engage intellectual discussions, it is nonetheless capable of supporting them, as your monograph *Critical Architecture/Architectural Criticism* proved. What is it that allows your work to engage these critical dialogs?

MS: We endeavor to maintain our office as an open, collaborative environment with exceptionally smart, talented people. Their ideas and conversations fuel the work and are part of a critical working dialog. I cannot imagine working without that. And regardless of its direct correlation to criticism or philosophy or theory, I would argue

that the work is an intelligent result of those conversations.

The conversations are generally based on continuing fascination with the essential issues within each project. We find enough in the realities and unrealities and materials of the projects, and life situations in general, to fuel the work. We enter into an extra-architectural discourse when the condition of a project suggests. We are fascinated by the possibility of anything affecting or being translated into architecture.

This way of working is at once inclusive and direct and at the same time incredibly complex and complicated. We do not edit the projects beforehand. That the structure of the relationships that emerge mirrors the structure of certain intellectual debates may allow others to make critical connections.

TG: Is that to say that each project begins anew, that consistent themes do not carry from project to project?

MS: I do not think that is possible. Anyone working in a creative field will develop a library of knowledge and experience. It may not be specifically pursued, but it develops in some way, somewhere—in the experience, in the back of the mind, in the fingers. If it did not, no one would accomplish anything.

**

TG: You and Merrill spent twenty very successful years at Heery and Heery Architects before leaving to open your own office in 1984. Why did you choose at that point in your career to perpetrate such a radical reconfiguration of the way you work?

ME: We decided to run our careers backward. Get big and then go small!

MS: That was an amazing twenty years; I cannot emphasize that enough. Heery had an entrepre-

neurial owner and founder, George Heery, who wanted to stretch, to take on progressively more difficult roles and to successfully work his way through them.

We started there with twenty people. When we left there were five hundred. There were numerous businesses and many offices. Merrill and I had major responsibilities in the architecture and design company. It was an incredibly exciting place, primarily staffed by young people. For example, we realized a major regional airport expansion with a team whose average age was twenty-six. We grew as the company expanded.

So why did we leave? I can only speak for myself, but after a while I began to realize that the decisions I was making directly affected five hundred families. For me that was a very important responsibility, but that responsibility left little time to do what I enjoyed most in architecture. I found myself spending a huge amount of time in rooms filled with twenty or thirty people—designers, mar-



LEFT: Parker and Scogin Architects, now Mack Scogin Merrill Elam Architects, The High Museum of Art at Georgia-Pacific Center, Atlanta, Georgia, 1985, interior
RIGHT: The High Museum of Art at Georgia-Pacific Center, exterior

keters, construction managers—on every project. You either enjoy that process, which can get unfocused and impersonal, or you do not. After a while I did not enjoy it anymore. Merrill and I were optimistic enough to think we could do something else.

TG: What was the first exploration into that something else?

ME: Our first commission was the High Museum at Georgia Pacific, in Atlanta.

Richard Meier's building for the High Museum had just been completed. At that juncture, the Georgia Pacific Company offered to build a satellite museum for the High. Georgia Pacific paid for everything but the operating costs.

The museum director, Gudmund Vigtel, was someone we knew well. Over the years we had worked with him and Paula Hancock, curator of children's programs, on a series of participatory installations. We had a successful and productive

relationship with them and they understood our work ethic. When Gudmund called it was a very lucky and timely break.

MS: We had done nothing like the High Museum in our years with Heery. We had never done a gallery or a project that carried with it the cultural import traditionally associated with a museum. It was a very different experience for us.

TG: How did you approach that project differently than what you had been doing at Heery?

ME: We were a very small group. There was no model builder. We sat down and built the models and did many of the drawings ourselves—a radical and refreshing change in our modes of production. We went from sitting in conference rooms to spending all of our time in the studio, cutting pieces of board and thinking intensely about the project. That is not to say that one does not think intensely about

the projects in a larger organization, but there is something vital about engaging the work with your own hands.

MS: The project was literally a building within a building. We made a white paper model of the existing building and its structure. In order to differentiate the existing building from our intervention, we made the insert out of stained basswood. When we presented it to Georgia Pacific, which is a wood products company, they immediately made an association that had entirely escaped us. Wood became the primary material defining the enclosing surfaces, facades, and circulation spaces of the museum.

The project was, by the way, extremely complex both structurally and strategically. Moving through three stories of a twenty-five-foot-wide south-facing greenhouse space provoked a study in transformative ideas about procession and facade. The reinterpretation of these elements became the conceptual construct around which the design evolved.

ME: It was not our initial intention to work with wood. It had not entered our minds until the client's reaction to our initial design.

TG: **Either you two are the luckiest people in the world or there is something else at play here. I have never seen so many happy accidents.**

MS: I think that is a characteristic of our experience in architecture, and is what I meant by our desire to remain vulnerable, innocent. Taking on the paradoxical, the seemingly unsolvable—even the awkward, the unexpected, the curious—energizes and challenges us.

We had twenty years of experience designing buildings with extremely sophisticated management and production techniques, yet we were naive about this small, tactile project. What we could do was make this simple concept model, which embodied the most essential strengths of the project. From this bumbling situation, we found ourselves embroiled in

a project whose rather simple original intention had been unexpectedly enriched and complicated by ten thousand pieces of wood paneling. From that point forward, all of our expertise, all of our research abilities were focused on how to build the project.

TG: Would it be fair to say that all of your projects begin in this reactive mode?

MS: To say that our projects are totally reactive means that there is nothing there grounding the work. I think our process engages reaction but with a full deck of cards.

TG: I am trying to get at how that process operates, at which cards you are playing. What could a student take away from how these projects are made?

MS: Our early years in architecture gave us a knowledge base and confidence in our abilities to make things, build buildings, and to accomplish the

unusual against fairly high odds. You find a difficulty and you make an opportunity; you reshuffle the deck of cards. I would not necessarily recommend that as a model, but we are able to do it because we learned that unexpected architectures may emerge from evolving circumstances and situations.

So what is the model for students? It sounds so boring, but I think one has a responsibility as an architect to know how to accomplish what one proposes to a client. If you do not think you can actually do it, do not propose it.

We are not risk takers. We do not experiment with projects; we experiment with architecture. In fact, our work is not a lot of things. It is not purely theoretical architecture, it is not a fantasy, and it is not anything we presuppose. Merrill often says that you can build anything you can draw or imagine. We do intend that everything we put out there gets constructed and built. Our work is serious in that regard.

TG: How do you intend for people to receive your work? What is the appropriate mode of reception? For example, when one visits a building by Peter Eisenman, there is an expectation that one arrives with a sufficient amount of intellectual baggage. In a certain sense, Eisenman designs buildings for architects and other experts to analyze at a level of very close attention. While I believe that your projects lend themselves to that kind of close attention, I am not sure that you intentionally set up the content as Eisenman does.

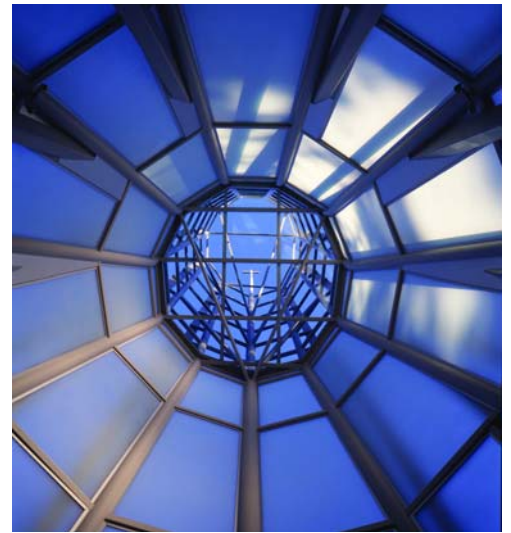
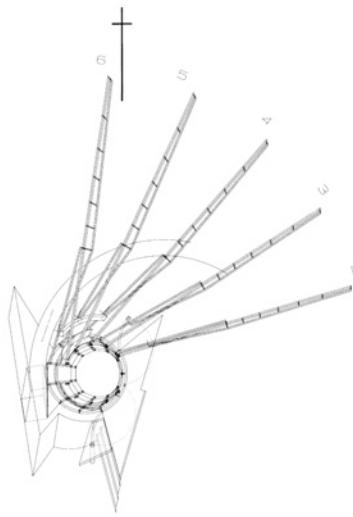
ME: In a way you are answering your earlier question about “high” and “low.” We believe that architecture should be legible to the person who comes fully equipped to read it, but it should also be legible and engaging for a six-year-old or for the guy who works at the service station down the street. Architecture should operate on many levels.

TG: Someone like Eisenman is actively trying to

steer the discourse of the field. I do not think you have that ambition, but you are both certainly aware of what is happening in architecture and your work remains in close dialog with your contemporaries.

MS: You may be right—we are constantly measuring our work against the architectural discourse, which we value enormously. While we are not vocal in the discourse, we are fascinated by it and value it immensely. Although the content of the work is not driven by theory, it could be argued that by building we have a legitimate position in the discourse. Frank Gehry’s practice is brilliant in this regard—he is inseparable from the discourse and yet never says a word. He is difficult to pin down within the discourse of architecture but is exceptional in every way.

Herzog and de Meuron operate in a similar fashion. I would argue that Gehry and Herzog and de Meuron are two of the most distinguished prac-



LEFT: Scogin Elam and Bray Architects, now Mack Scogin Merrill Elam Architects, Turner Village at the Candler School of Theology, Emory University, Atlanta, Georgia, 1987, plan diagram
RIGHT: Turner Village, tower view

tices of our time. So how does one make a practice that does that?

STUDENT: One might generalize that Gehry deals primarily with sculptural form and Herzog and de Meuron deal in skin. Could we summarize your practice with a similar term?

MS: I do not like the idea of summarizing the work of architects. Generalizing about Gehry and Herzog and de Meuron or us is like trying to write Cliffs Notes on architecture. I would encourage you to do the opposite!

**

MS: Our project at Emory University is simultaneously one of the most idiosyncratic and one of the most rational projects we have done. All of the geometry emanates from a single point. The chapel comprises two circles that spring from a point in

plan, and all of the geometry of the building springs from radiating lines generated from that spinning geometry. We originally intended for that geometry to permeate a much broader portion of the site, but we were unable to realize that fully.

TG: This reminds me of the geometrical operations of the Baroque. Strangely enough, Borromini appeared a number of times in the series of slides you showed this morning.

MS: Borromini is a very strong influence. His work proves that an incredibly rigorous geometrical scheme can result in a surprising freedom of expression.

STUDENT: How do you decide which formal strategy to employ?

ME: We do not think first about the projects in terms of formal language or typology. Borromini, for

example, was telling a story with his buildings. We are always looking for the story.

We have been sitting in this room today telling stories. There has been talk about text and about how a narrative begins to give rise to architectural directions. One might wonder which came first, where do they cross, where does one influence the other, and how. And how do you separate them, how do they come back together, and so on.

STUDENT: The stylistic differences in your projects are quite drastic. Is there a thread you hold onto from project to project?

MS: Everybody that works with us wonders that. [laughter] I think that we truly are interested in an array of formal possibilities and are naive enough to think that we can make all kinds of form. Not just that we can make it, but that we understand it and understand it in relationship to a given set of circumstances. We have had the

opportunity to work with a wide variety of programs, projects, and clients. This variety requires different responses.

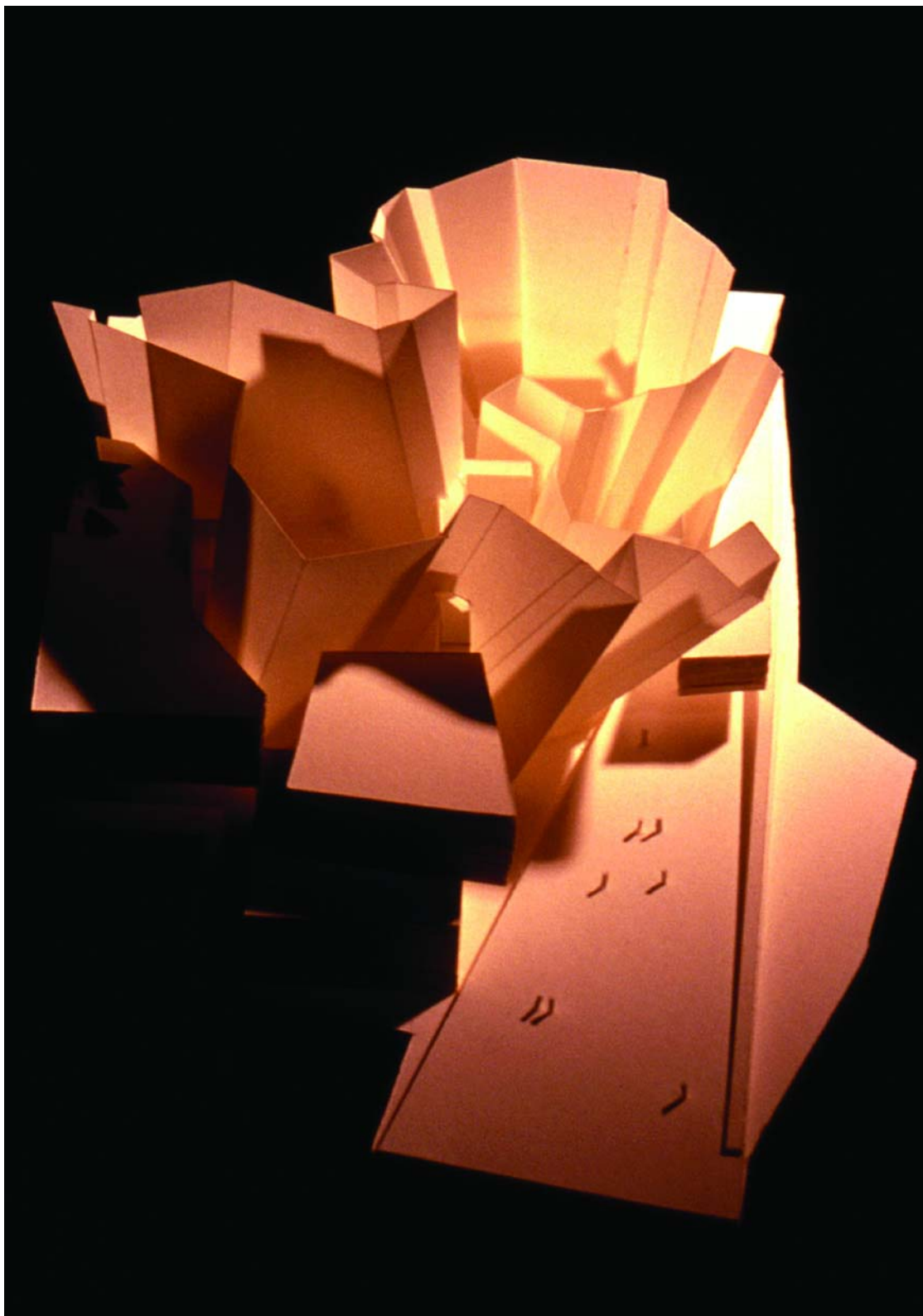
Heery was the most varied practice you can imagine. The only thing we did not do was residential work. All of our work was user generated, which meant that we had to solve a definitive set of problems. Sometimes that problem was, as with the Herman Miller facility, an industrial problem that was absolutely precise and rational. At other times, the requirements were perhaps a bit looser but nonetheless required some kind of formal or geometrical spatial sequence to solve or architecturalize the programmatic requirements.

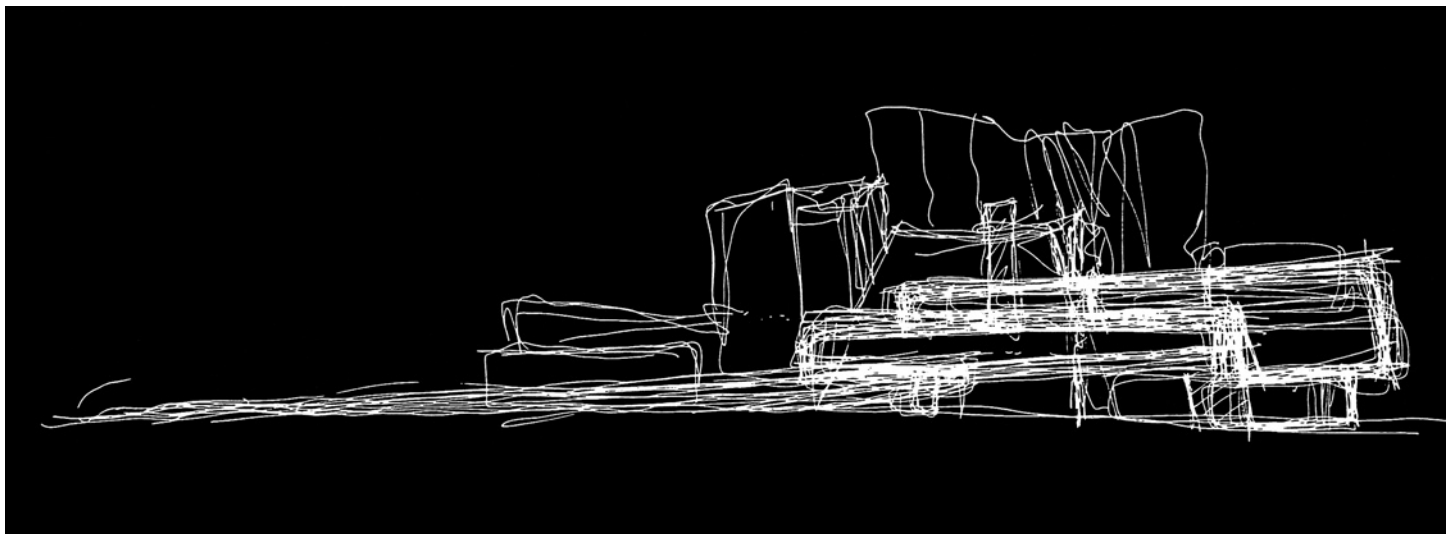
We are very accustomed to doing one-off analyses around topics new to us. We are more interested in what we do not know than in what we do know. I would say that is a quality inherent of architects. If you are not at least curious or, better still, fascinated by the unknown, I doubt if you could ever truly be an architect.



LEFT and RIGHT: Scogin Elam and Bray Architects, now Mack Scogin Merrill Elam Architects, Herman Miller Cherokee Operations, Canton, Georgia, 1996

An architect must be fascinated by what he or she does not know and must be willing to take that on. Being given the opportunity to take on something unknown, whether by a client, a site, or by a program, is the most exciting thing that can happen in our profession. Most of our work begins by searching for and researching what we do not know about a project. And we search for what we do not know by establishing what we know.





Laban Center for Movement and Dance (Competition Entry),
Deptford, England, 1999, early elevation sketch

opposite:
View of final model

LABAN DANCE CENTER COMPETITION

TG: Much of the initial thinking for the Knowlton School project was latent in your competition entry for the Laban Dance Center competition in London. Tell us about that project.

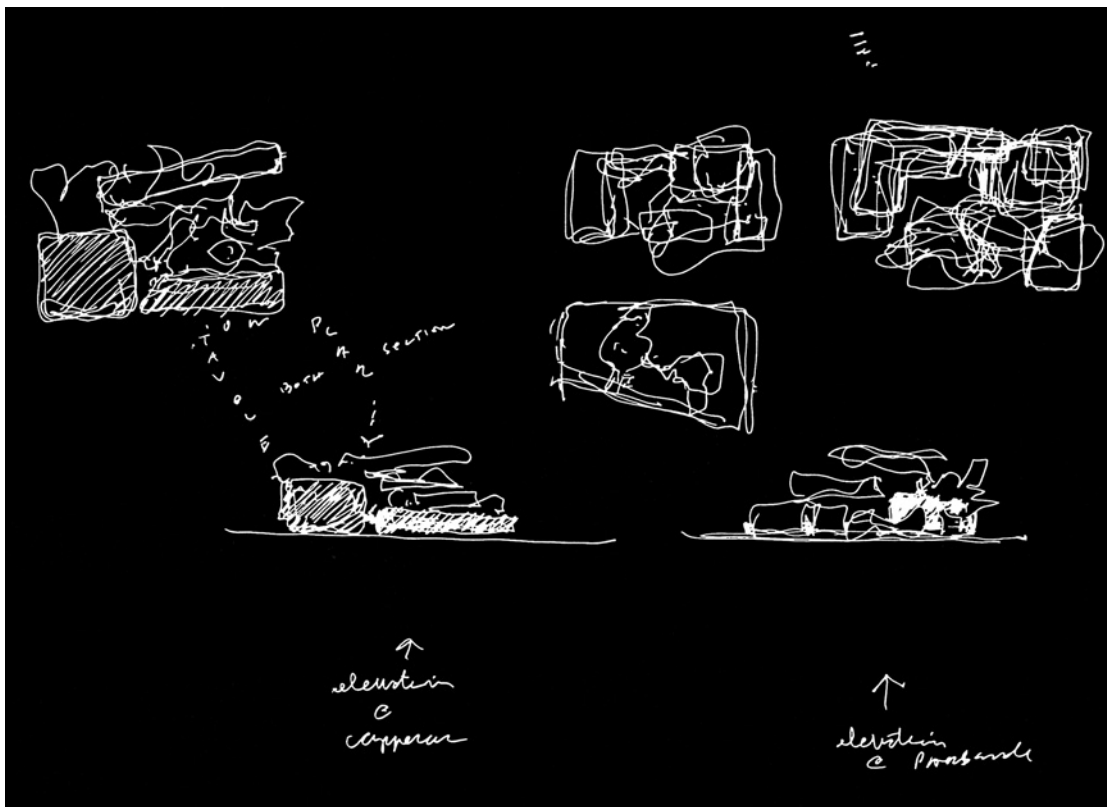
MS: Looking back at those plans during these sessions, we realized that in terms of its section and plan relationship, the strategy for the Knowlton School was almost identical to the one we employed on the Laban Dance Center.

I work primarily in plan and Merrill works primarily in section. Over the last several years, for all sorts of reasons, we have become more and more interested in the ability of the section to address a number of situations or requirements within a project—fairly consistent though an unintentional thread through the work. In fact, this was a bit of a revelation to us, a revelation that you helped us to uncover.

At Laban, as at Knowlton, the client wished to overlay the varied activities in the school—different types of dance, disparate teaching arenas and techniques, even different types of people involved in the program—in a nonhierarchical way. Laban had a very large and complex program of widely varied spatial conditions to be accommodated on a very compact, dynamic site bounded by a river, pedestrian traffic, and automobile traffic. The program called for large spaces, small spaces, compact spaces, wide open spaces, spaces with lots of light, spaces with no light, as well as very crucial functional relationships of technology, storage, and other support spaces. They wished to create a community of dance in which people would see and learn and be in contact with each other.

ME: Do not forget the library.

MS: Oh, yes. The Laban proposal also had a library on top, just like Knowlton Hall. And just like



Knowlton, we went through an extended struggle to discover the form of the project.

DAVID YOCUM: Laban started out with the instinct to figure the building as an object against the sky and in the landscape. After a number of iterations, we suffered something of a crisis of confidence and abandoned this strategy altogether. Instead, we employed the shape of the site to define a large box, concentrating our attention on the interior. We stacked the section and arranged the plan and functional requirements from the inside out, starting with a collective interior void. You will see that it was very similar to what happened with the various schemes we explored for Knowlton.

MS: But there was a problem. Merrill noticed that one would always move at the periphery of the void, never experiencing the space directly. And, on a functional level, it made for a pretty confusing building. To solve this, Merrill decided to introduce

a system of ramps that would weave the circulation back into the internal structure of the plan. The blank areas in the plan are studio spaces, with support modules spread out and sprinkled through the building as *poché*. The superimposition of this very slow 1:20 inclined plane organized the project and, of course, became one of the primary elements at Knowlton.

ME: With the addition of the ramp in the void space, the occupants of the building were always on display. Moving through the building became an everyday dance. Along the perimeter you would see someone on a ramp; from a ramp you would see someone on the perimeter. The building became a device for moving and seeing.

MS: But we were apprehensive because the building did not express itself strongly within its context. We found the context depressing—industrial, gray, cold—and felt the subject of dance needed a more



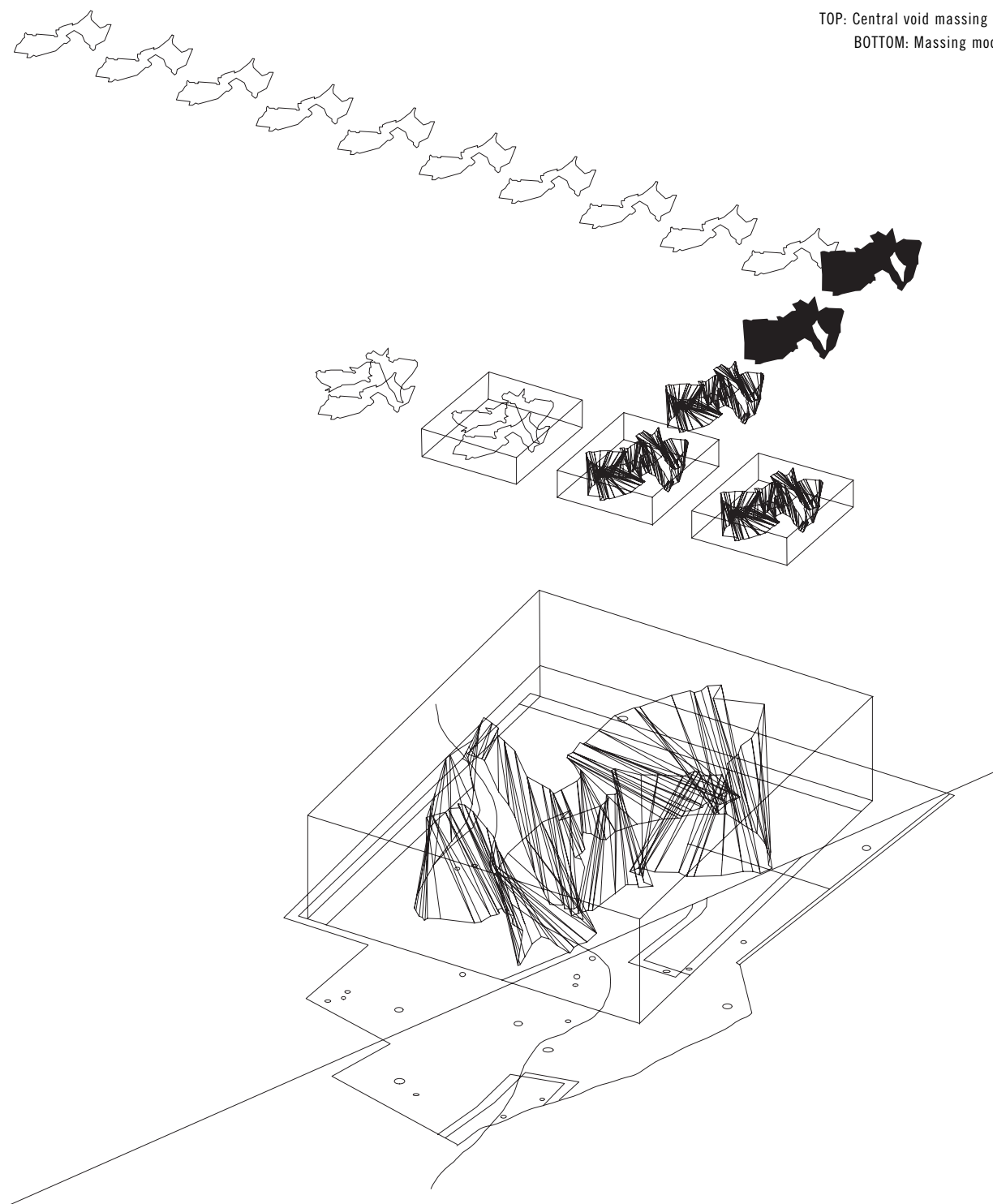
Composite floor plans

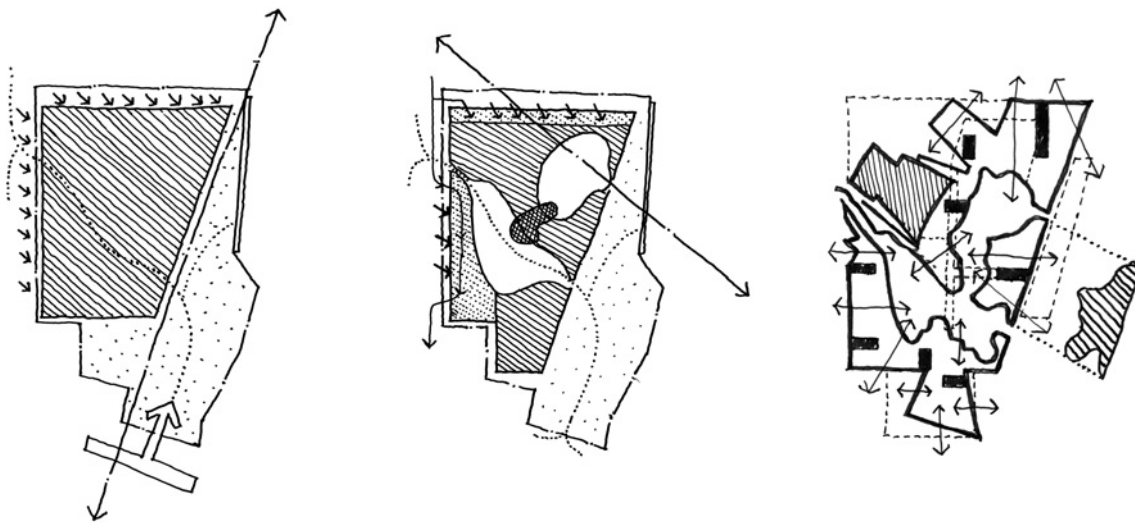
opposite:
Initial sketches

opposite:

TOP: Central void massing study models

BOTTOM: Massing model in context





LEFT, CENTER, and RIGHT: Plan diagrams

opposite:

View of final model

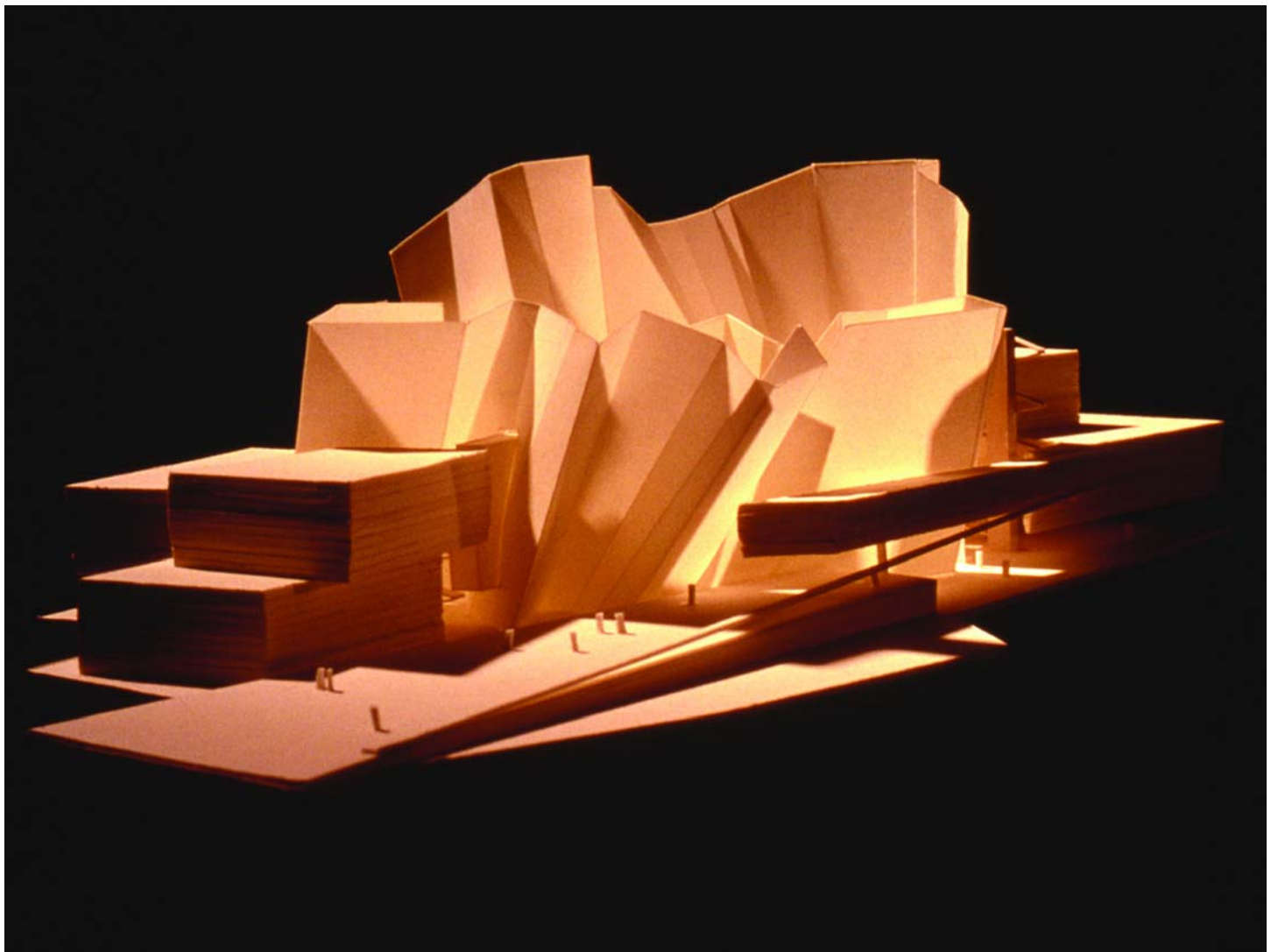
celebratory expression, like Judith Jamison prancing in with her umbrella in Revelations. So we started expressing the form. The building plan did not change; we simply externalized the shape of the voids within to achieve the final, sculptural form.

TG: And Laban ends up selecting Herzog and de Meuron's entry, a project that simply extrudes the site and hides all of the activity behind an incredibly understated elevation.

MS: You are right. It was a very similar strategy to our initial scheme—except they stuck to it.

TG: So, lesson learned?

MS: Well, I'm not sure that we actually learned the lesson . . . [laughter]



PRELIMINARY DESIGN



ASPIRATIONS

Recognize that a building is never neutral and that a building for a school of architecture is by definition a teaching device that either reinforces and enhances, or impedes a pedagogy.

Make a building that participates in the pedagogy of the university by instructing the broader academic community in the nature and potential of architecture, and by revealing the relationship of urban design, architecture, and landscape architecture as integrated disciplines.

Make a spatial configuration that sponsors open discourse in the broad community of architecture, a place of collective discourse that empowers the individual while speaking to architecture as a public act/art/debate.

Make a building that brings an encyclopedic approach to space, spatial relationships, light, materials, and means and methods of construction.

Make a structure that aspires to:

privilege the individual in the collective;

balance the collective effort and the individual effort;

sponsor freedom of exposure and freedom of absorption;

make a condition that allows individuals to find their own place and path and creative response;

provide an armature for production and a forum for discussion;

address the relationship between the pedagogy and the physicality of construction;

address the role of the computer in the studio;

create a nonhierarchical spatial condition that promotes connectivity among departments, individuals, spaces, and ideas;

use the dynamics of the site and context to merge the architecture program and the public realm.

Make a place of possibility that is open ended—a provocation rather than an answer.

Ultimately design a building that encourages speculation and discovery on the part of the students within the program and promotes community among the three disciplines and the user body at large.

SITE DENSITY CONGESTION STATISTICS

12 per hour: buses per day stopping at north side of Knowlton Hall

982: students per day at Knowlton Hall

5,307: students per day at the Fisher College of Business

6,953: students per day at the College of Engineering

1,575: vehicle capacity at Northwest Garage and

Tuttle Park Place Garage south of Knowlton Hall

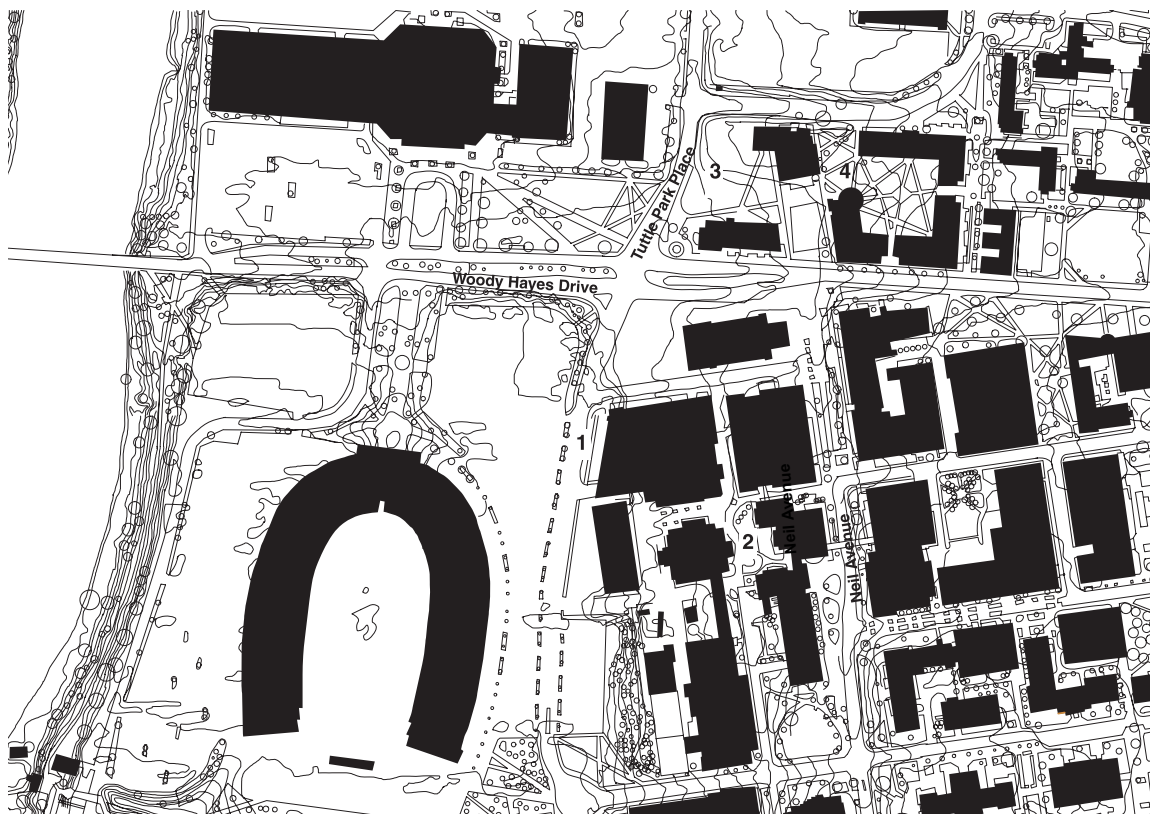
101,568 people: capacity of the OSU Stadium

13,276 people: capacity of the St. John Arena

northwest of Knowlton Hall



The site is located at a large intersection on the nation's largest university (58,254 students on 15,246 acres), across from a large stadium and the business school complex and adjacent to two large parking structures. A building for a large school of architecture (891 students) on such a large site could be expected to reciprocate and celebrate that largeness.



Site drawing showing existing location of Ives Hall

opposite:
Site drawing showing the master plan proposal

previous page:
OSU figure-ground drawing

SITE

MS: It is amazing how much this campus has changed since we have been coming here, how many construction projects have started, how many roads have been moved around and redesigned. The dynamics of the campus have been radically altered in just a few years.

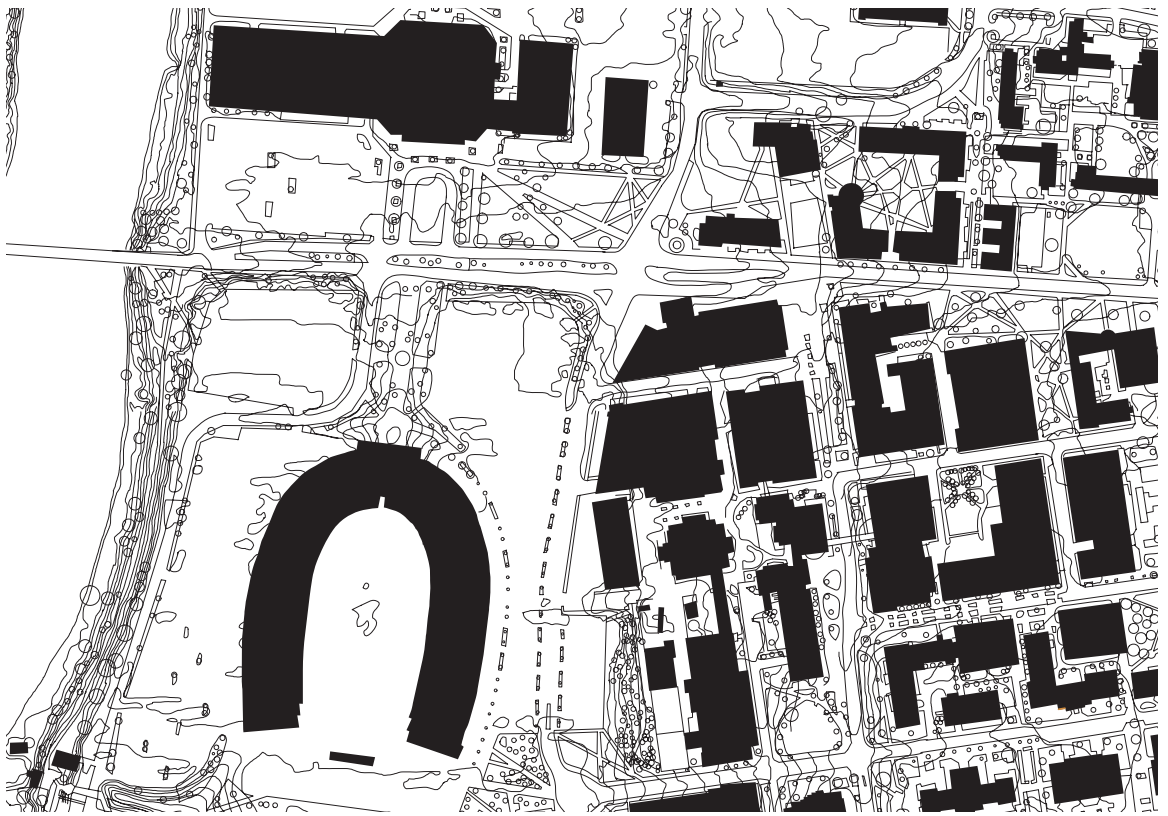
When we began the project, there was a lot of talk about increased development to the north and west that would bring more pedestrian flow through the site. The garage to the southwest (1), along with the recent development along Millikan Walk (2) to the bookstore, as well the hotel at the business school (3) did not exist. They were simply items in the master plan. For us, this was a very exciting place because of all that was to come.

The site is a gateway to the main campus and the oval. At its west end, a few thousand cars per day turn from Woody Hayes Drive onto the campus. Traffic moves to Tuttle Park Place, around the south-

west corner of the site to Ives Drive, and into the parking structures directly to the south of the site. Some might think of these huge parking structures as negative influences, but we saw the volume of people entering the campus here as very positive. The site functions as a front door to the campus.

In terms of pedestrian traffic, there is a little bit of everything. Millikan Walk connects our site to the cafes and bookstore to the south along an axis that will eventually terminate in Antoine Predock's addition to Larkins Hall. To the east edge of the site, a parallel circulation axis leads along Neil Avenue from the new business school (4) all the way to the oval.

This dynamic, pulsating circulation of cars and people coming to and from the school and the campus each day is punctuated by the seasonal activity at the adjacent football stadium and the other athletic facilities to the northwest. Eight Saturdays a year, a massive influx of people—well over 100,000—and activity is drawn to the site. All



of this makes the site not only interesting to us as designers, but also illustrates its potential to be instructional for students within the school of architecture. It collapses onto one site so many of the conditions that students will have to deal with for the rest of their careers in architecture: automobiles, various rates of speed, pedestrian traffic at different concentrations, diverse population types, etc. For a student to be able to witness this array of activity in such close proximity to the design studios is a very unusual condition. The students will be right in the middle of a zone of activity, not removed from congestion and density. This is an incredible opportunity to observe and learn how various day-to-day activities can relate to a building.

To clarify and study these forces, we did analyses. These began in a very traditional, straightforward manner, the kind all of you have done in various studios. What does the circulation do, how many people, how many cars, what is the sun's orientation, etc. These drawings became a record of

these influences, as well as the influence of the relationship between the edges of adjacent buildings and the actual and perceived site.

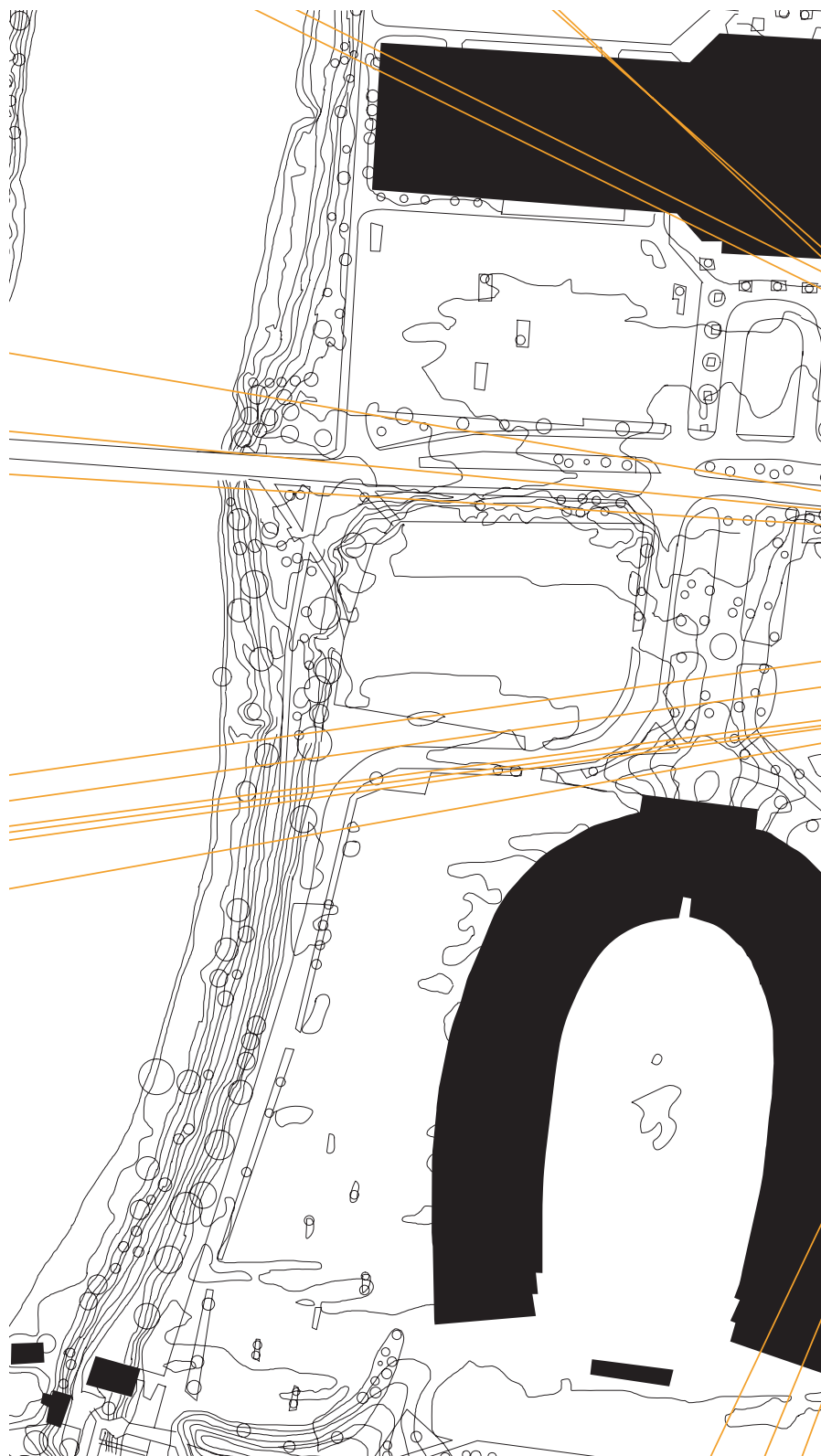
ME: Initially, we began by recording the lines of influence on the site. Eventually, some of those lines became regulating lines within the building.

BOB WANDEL: I watched these generating lines evolve through the six years of the project. To me, what is crucial is that all those lines came from existing conditions on the site. It wasn't an arbitrary condition generated by Mack or Merrill or David and imposed on the site. Instead, they made explicit the latent organizational possibilities of the site.

TG: **I am curious about the lack of hierarchy in these drawings. On the site certain lines are much more influential than others, and one could imagine that hierarchy of influence modulating the design. But in this drawing, incidental diagonals**

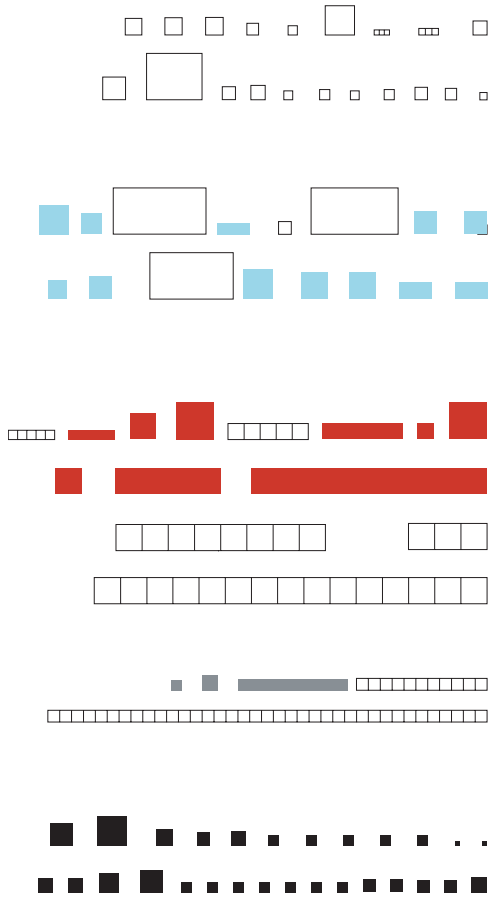
from asphalt walks and very strong axial building lines are rendered identically. Why is that?

MS: We did not start by giving them hierarchy. It is pretty obvious that the line along Neil Avenue has more of an influence than a line emanating from a sidewalk at the business school across the street. But if one invests the analysis with hierarchy, one risks shutting down rather than opening up potential. Some might question whether these lines have influenced and regulated the building from start to finish. I would argue that they do. In some way, they are present in every drawing; but in the end, I do not much care if they do or do not.





Scheme A



Scheme B



Program Elements library classroom and other studios faculty offices administration unfulfilled program

SCHEME A PARAMETERS

Renovation of Ives Hall=55% of program space
Addition to Ives Hall=45% of program space
Renovation construction cost=\$3.5 million
Addition construction cost=\$8 million

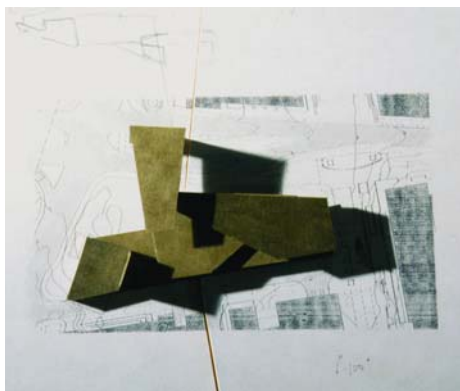
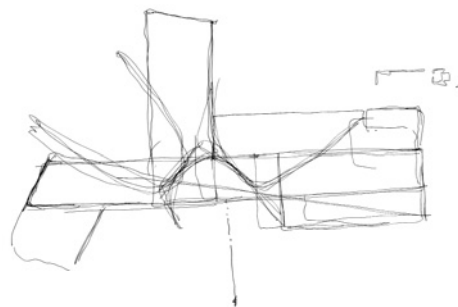
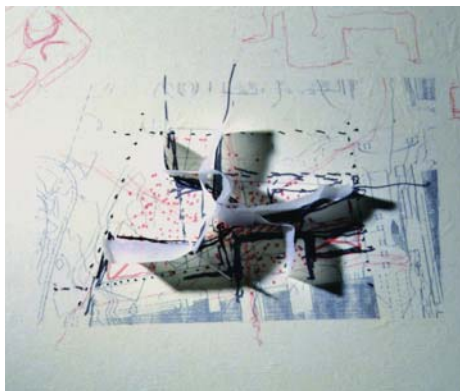
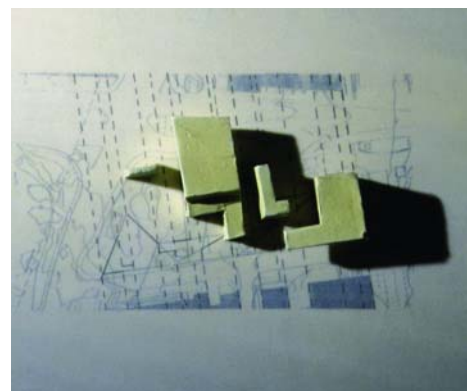
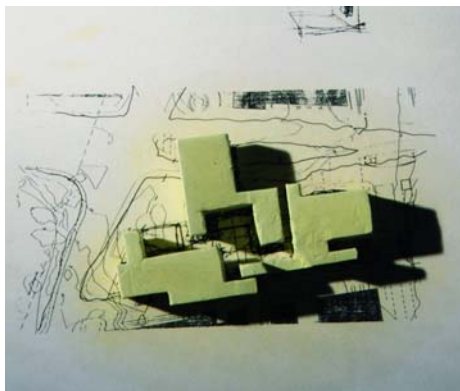
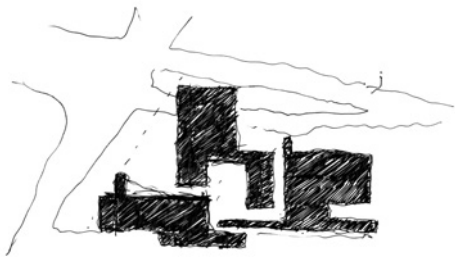
SCHEME B PARAMETERS

New building=100% of program space
New building construction cost=\$20 million

PRELIMINARY DESIGN

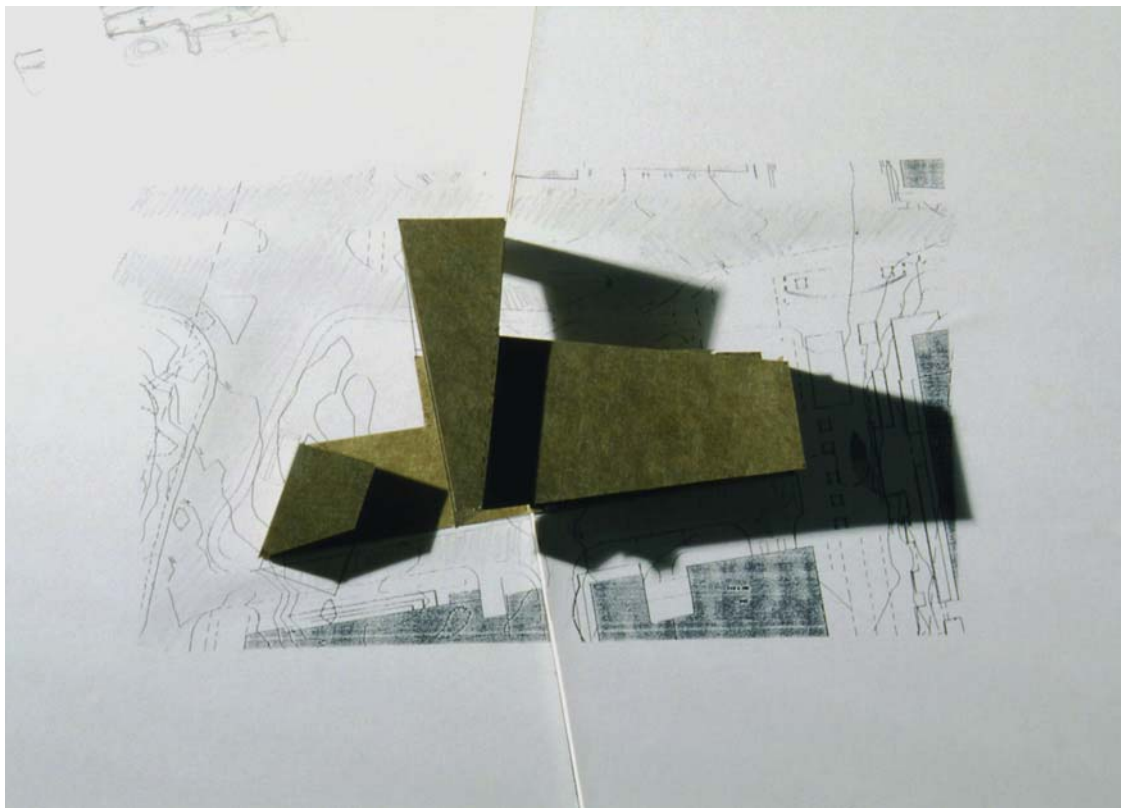
DY: These drawings illustrate the program that was originally given to us. We started the project with a directive from the university to complete two options: an addition to Ives Hall and a full replacement.

The addition was to be located to the west of the existing building. It was a very small program—only 50,000 square feet—with only six or seven studios. Scheme B, a complete replacement of the building, was something of a hail Mary pass that Rob Livesey asked us to study. At the beginning, sufficient funds were available only for the addition.



TOP ROW: Early sketch and model studies, massing
 CENTER ROW: Early sketch and model studies, voids
 BOTTOM ROW: Early sketch and model studies, enclosure

opposite:
 Early model study



TG: What were the budgets for these schemes?

DY: Eleven and a half for the addition and twenty million for the replacement. But three and a half million of the addition budget would go toward the renovation of the existing building, leaving just eight million for new construction.

MS: You will notice in these early studies a weaving of the interior and exterior spaces of the campus into the form of the building. We grabbed the site and pushed it into the building and simultaneously pushed the building back against the shape of the site, most forcefully in the cantilevered studios over Woody Hayes Drive/Woodruff Avenue. We did this to open up the site, to bring landscape and light into the thickness of the building.

DY: We do not work in a linear fashion; we usually have about sixteen different ideas simmering at once. We often spoke about bringing exterior space

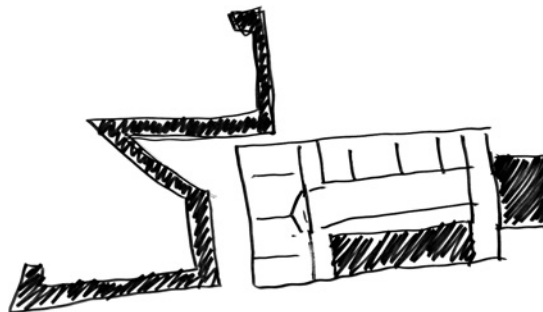
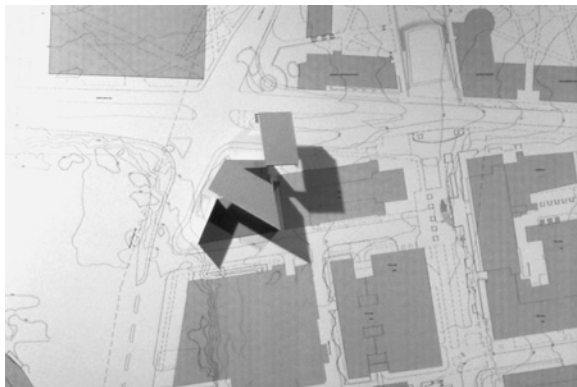
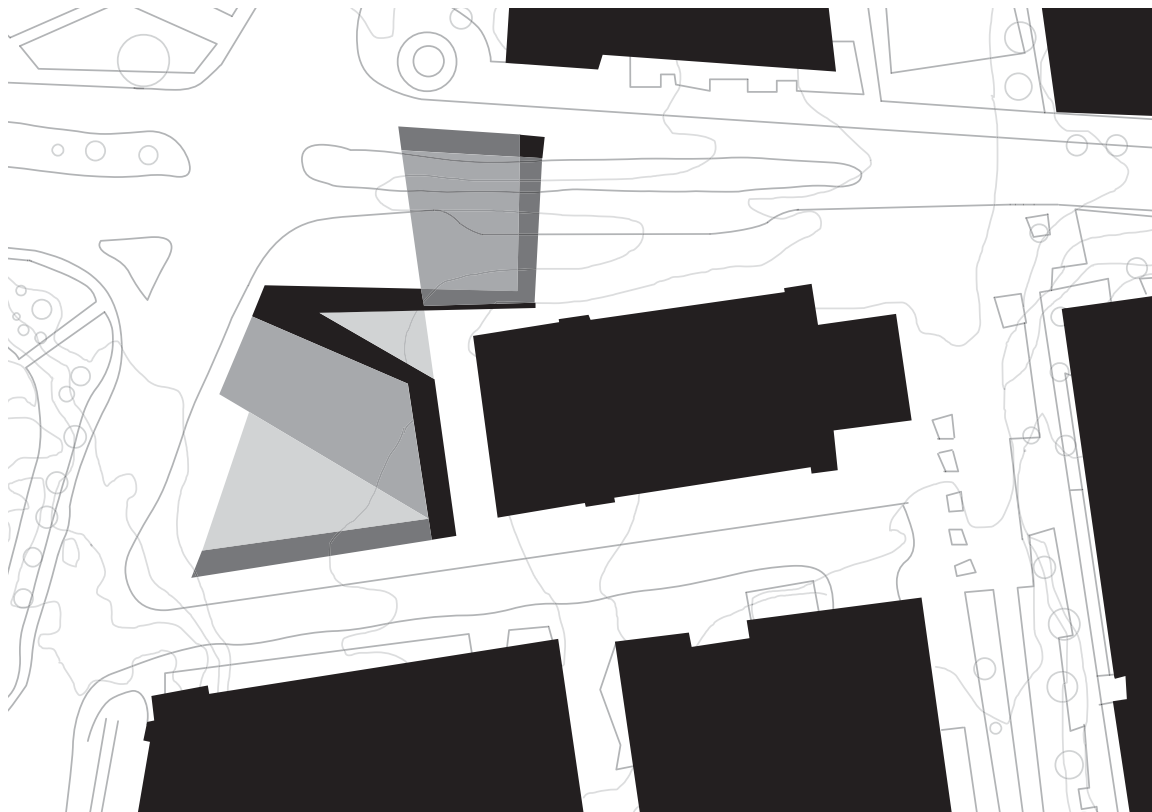
into this building. To represent this, we made conceptual models that had nothing to do with the shape of the building. Rather, they explored how to capture space and figure potential voids on the site.

MS: Looking carefully, one can notice in these studies the initial formulation of the section as a means to interlock interior spaces.

TG: These models were driven by the initial lines of the influence diagrams, correct?

MS: Exactly. The models were built directly on top of those drawings.

DY: In these very early drawings, one can see ideas that return again and again in later investigations. These early ideas about the site impacting the building were eventually constructed as exterior courtyards as well as building form. Much of the building's final form was present in these initial



TOP: Early Ives addition scheme, collapsed plan

BOTTOM LEFT: Early Ives addition scheme, model

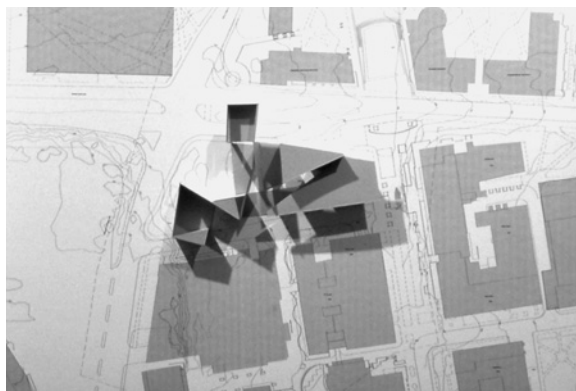
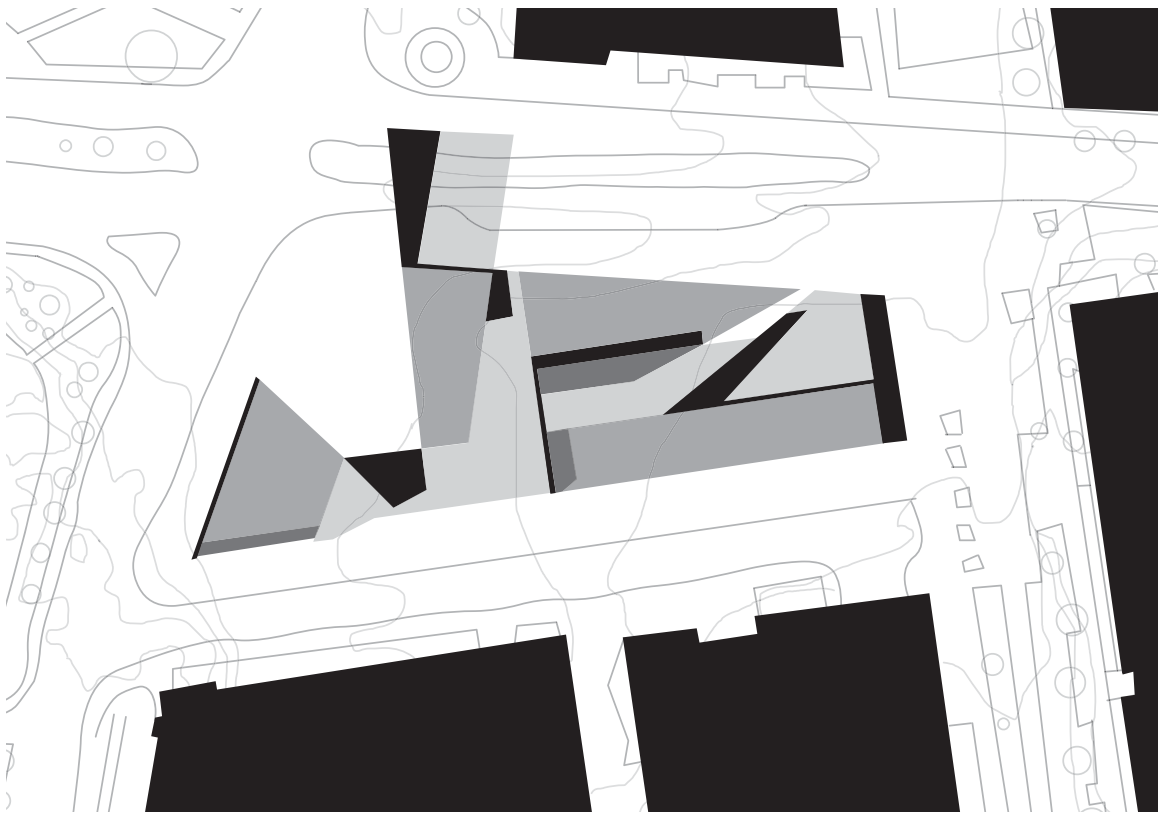
BOTTOM RIGHT: Early sketch

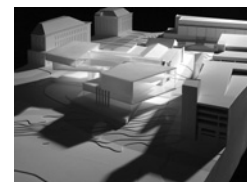
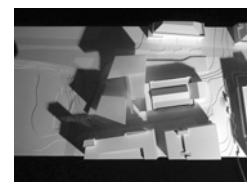
opposite:

TOP: Early Ives replacement scheme, collapsed plan

BOTTOM LEFT: Early Ives replacement scheme, model

BOTTOM RIGHT: Early sketch





investigations. One of the most obvious shapes that can be traced through all of the schemes is the shape of the property line of the site.

At this early stage, we began to notice certain possibilities within the site and in the massing of the program. The studios would be stacked on top of each other with the continuity of ceiling planes but with the discontinuity of the floor planes. This arrangement would afford transverse views across the section of the building from one floor to another.

MS: This phase ended with two sets of drawings and models. Each scheme was an attempt to weave together the various elements of the program in a complex sectional strategy.

TG: The result is two schemes that engage the context by aggressively figuring the building against it, as you did in the final form of Laban.

MS: You are right. In both cases, the form of the

building strongly counters the site dynamics. In the end, we wound up with a very different expression at Knowlton Hall, but this was the way we instinctively started the project.

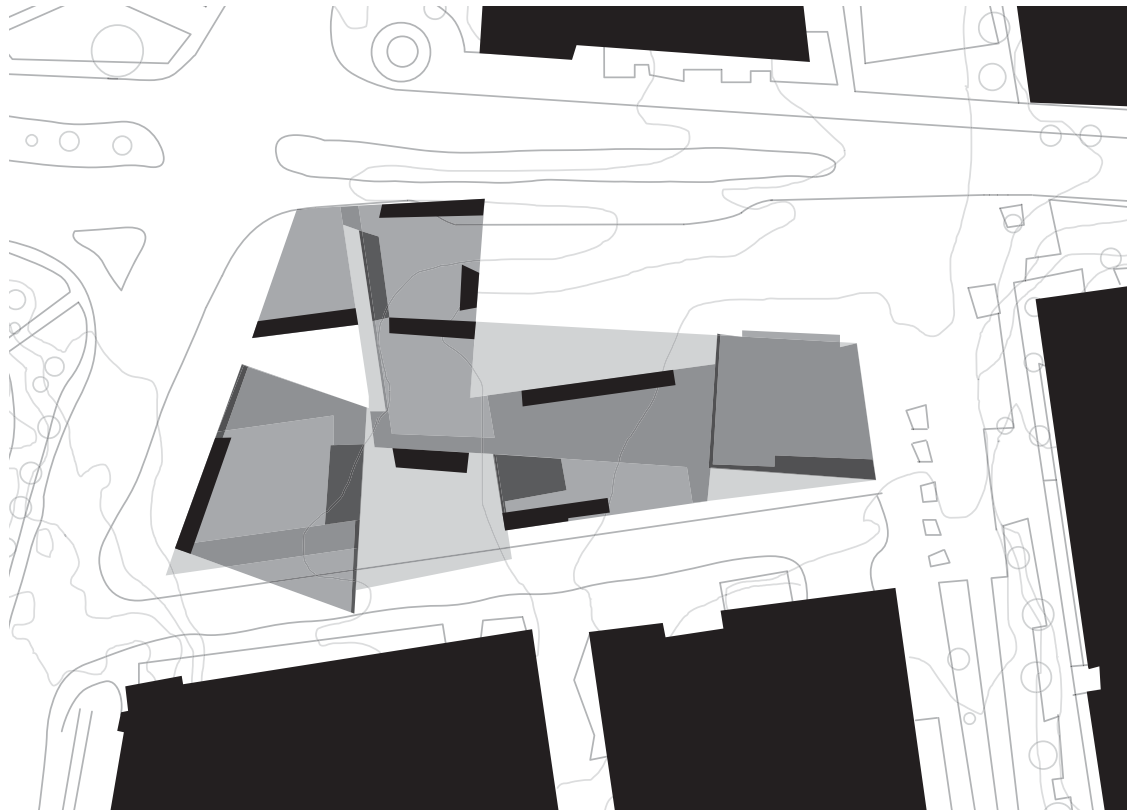
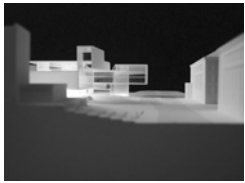
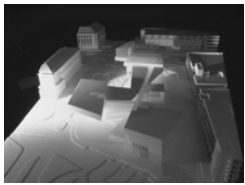
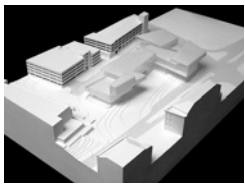
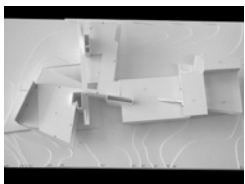
TG: Is it important that the site conditions are legible in the final form? Should one be able to read them or are these simply devices to generate spatial and formal complexity?

MS: I think it is both. The final building is quite legible in terms of its context. Some of the relationships are so direct you cannot deny them.

DY: I think it is fair to say that the instincts and the desire remained throughout the project, but the language changed.

ROBERT LIVESEY: What do you mean by language?

DY: When we started out, we wanted to express the



form of the building over the street and we wanted to announce the practice of architecture to the university. To do this, we put the students over the street so motorists would drive under them.

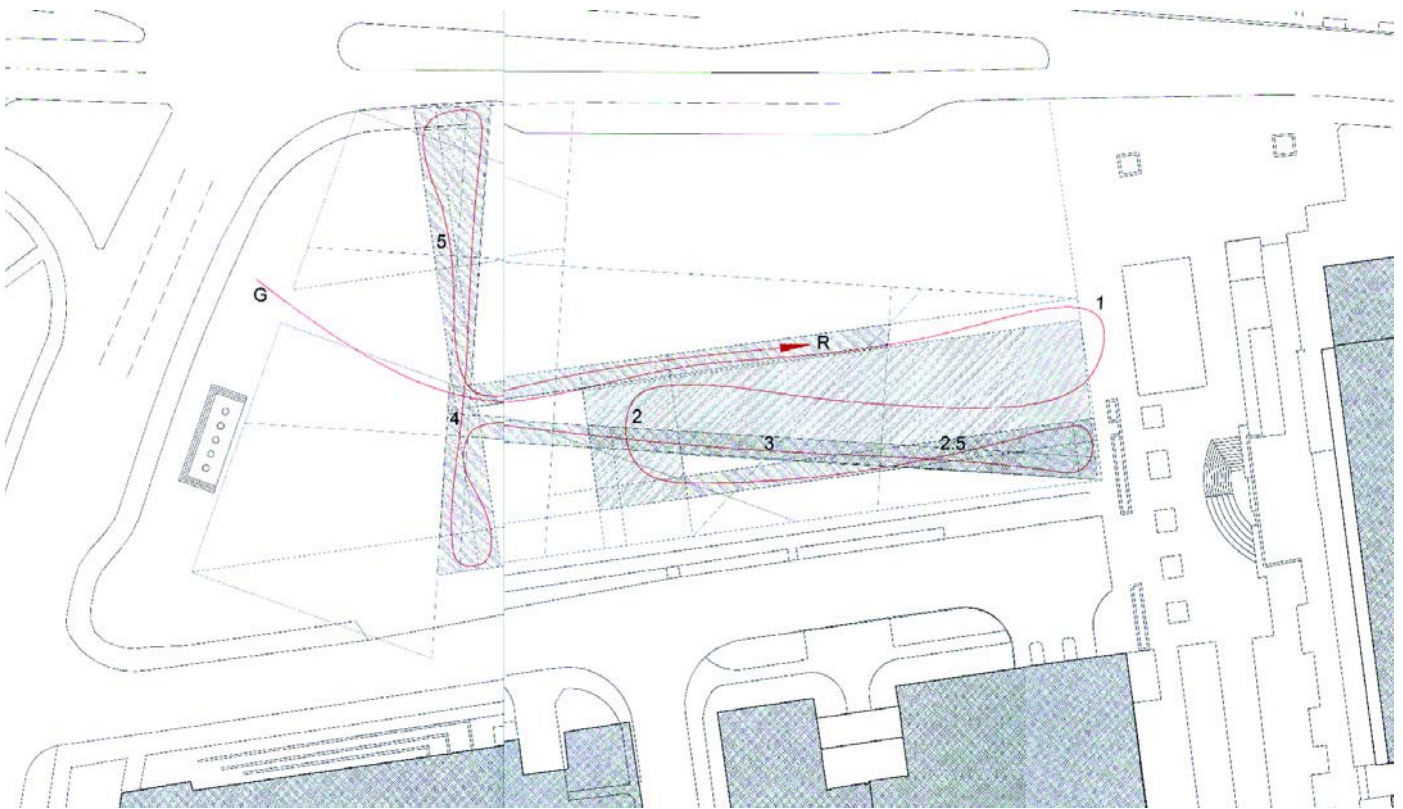
Another way to accomplish this is to pull them back into the site and make a big window so everyone can see out or in. When I say “language,” I mean we can use different methods to express the same set of desires.

ME: I believe the question is, how does architectural form enhance or diminish an idea or intention? In this case, the intention was to present the architecture student to the public at that intersection and vice versa. The forms we initially employed enhanced that presence by making the form of the building more exuberant. The building as constructed is much more restrained in that regard, with that expression, but the idea is still there. Through form making, we articulated and modulated the intention in different ways.

LEFT COLUMN: Ives replacement scheme, model images
RIGHT: Ives replacement scheme, collapsed plan

opposite:

LEFT: Ives addition scheme, collapsed plan
RIGHT COLUMN: Ives addition scheme, model images



MS: The reactions to these initial schemes were mixed. Some found it very exciting; others read it as an aggressive departure from the university master plan.

★★

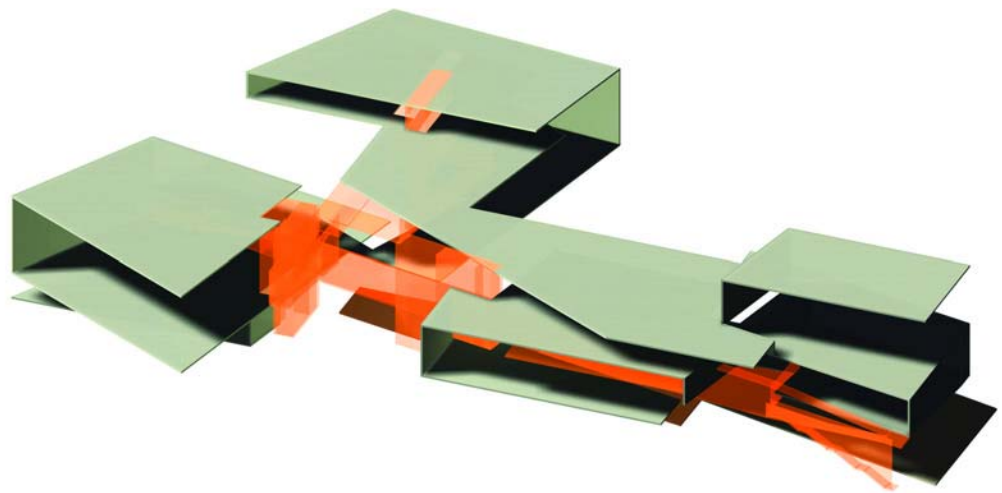
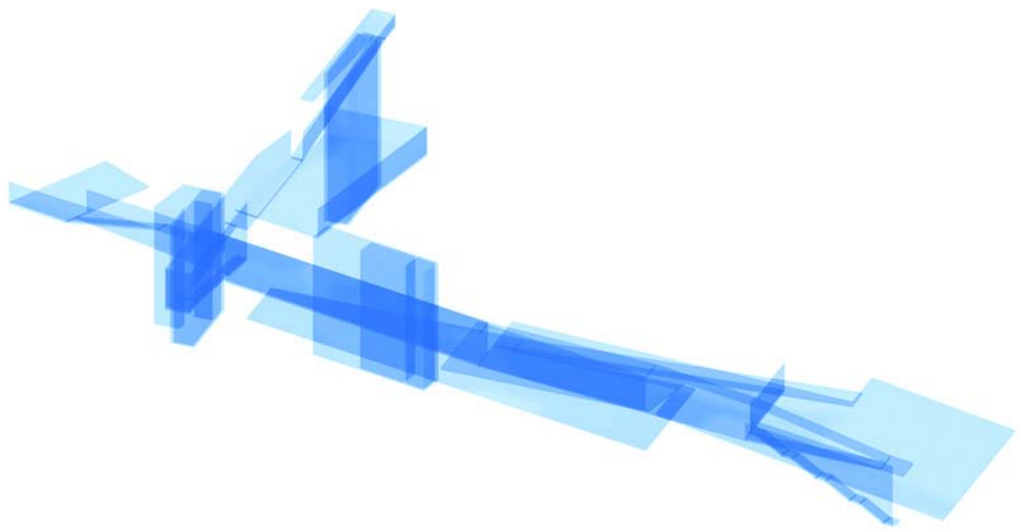
We were trying to orchestrate the circulation and program relationships of the addition scheme so that it would operate as one building. Very difficult, quite frankly, but that is what we were attempting to do. The ramp system was woven in two directions around the faculty offices, which were dispersed around the circulation system up through the section.

DY: The ramp sketch in the site (above) is an important diagram. We thought about the experience of the building from the first moment you came upon it at the front door as a path through the program up to the roof.

Early on we were thinking about the building project two ways at once: one was the choreographed experience and the other was the folded container.

★★

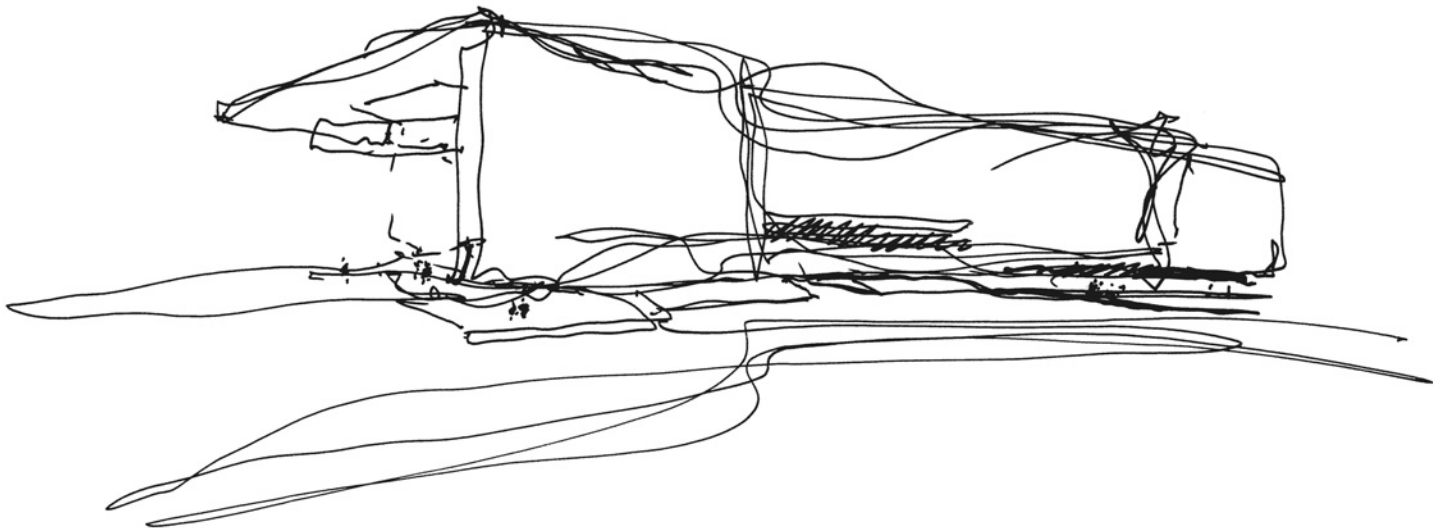
MS: I will never forget a question from one of the faculty members about these early schemes: “If I have somebody coming to meet me in this building, how in the world are they going to find me?” It was a great question—to which I did not have an answer—that clarified one of the major shortcomings of those early schemes. Everything in the design was articulated to the same extent, making it very difficult to understand conceptually or to navigate physically.



TOP: Computer model of ramp system
 BOTTOM: Computer model of ramp system

opposite:
 Ramp sketch in site

SCHEMATIC DESIGN





BOX SCHEME

TG: The so-called Box Scheme represents one of the major budgetary crossroads of the project.

Tell us about that.

DY: Building upon our reservations regarding the complexity of the preliminary schemes, the box exercise begins to explore the possibilities of a very straightforward, economical plan. Due to budgetary constraints, we had to turn a very complex formal scheme into a big dumb box. This was the only way we could make a complete replacement happen.

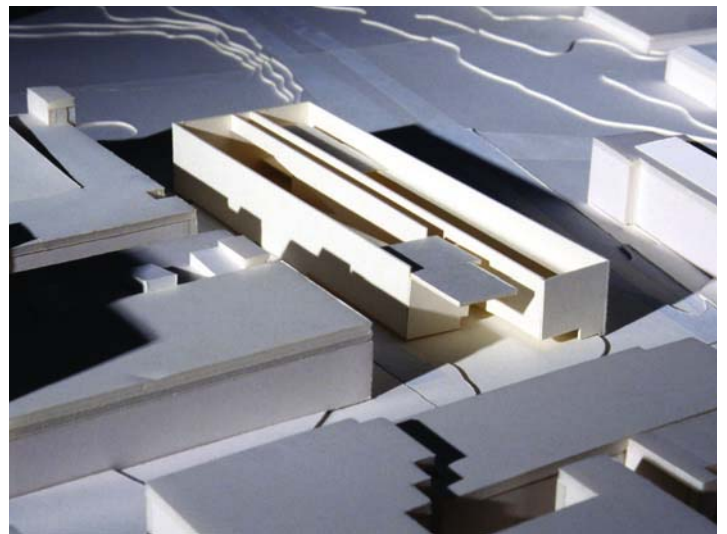
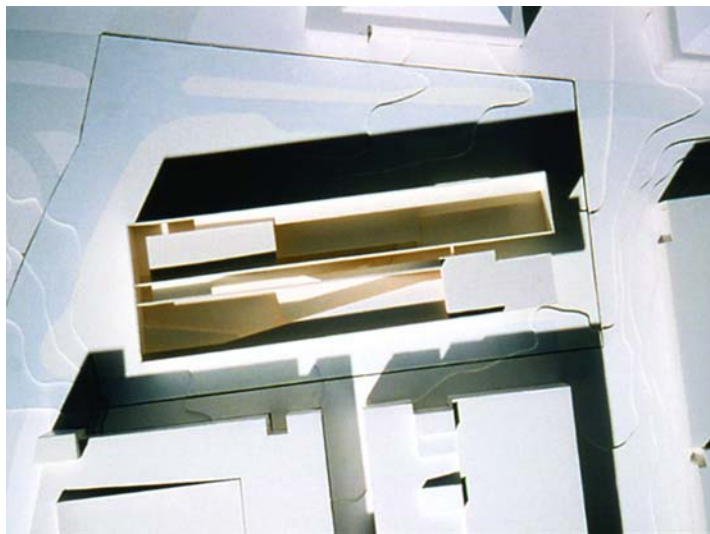
MS: Rob had been campaigning for additional funds, but not enough was raised to finance a full replacement of Ives Hall as described in the preliminary design. We brought everyone down to Atlanta for a meeting. “Do not panic,” we said, “We can still do it.”

BW: All the budget could support was an addition to Ives Hall, and each of us felt that that was the wrong thing to do. So we decided to explore a full replacement scheme for the cost of the addition. The university was supportive of this idea, so we were given a few months to explore.

TG: What was going through your mind at this point, Rob? This is a pretty radical shift from previous schemes.

RL: We wanted to see what could be done for \$20 million. It was that simple.

MS: Our advice to you was not to spend that much money on an addition. The school had one shot at a new building; it would never get another. Given that one shot, we felt it better to build a simplified form—sacrifice the aggressive form and have an entirely new building—it would be a better investment.

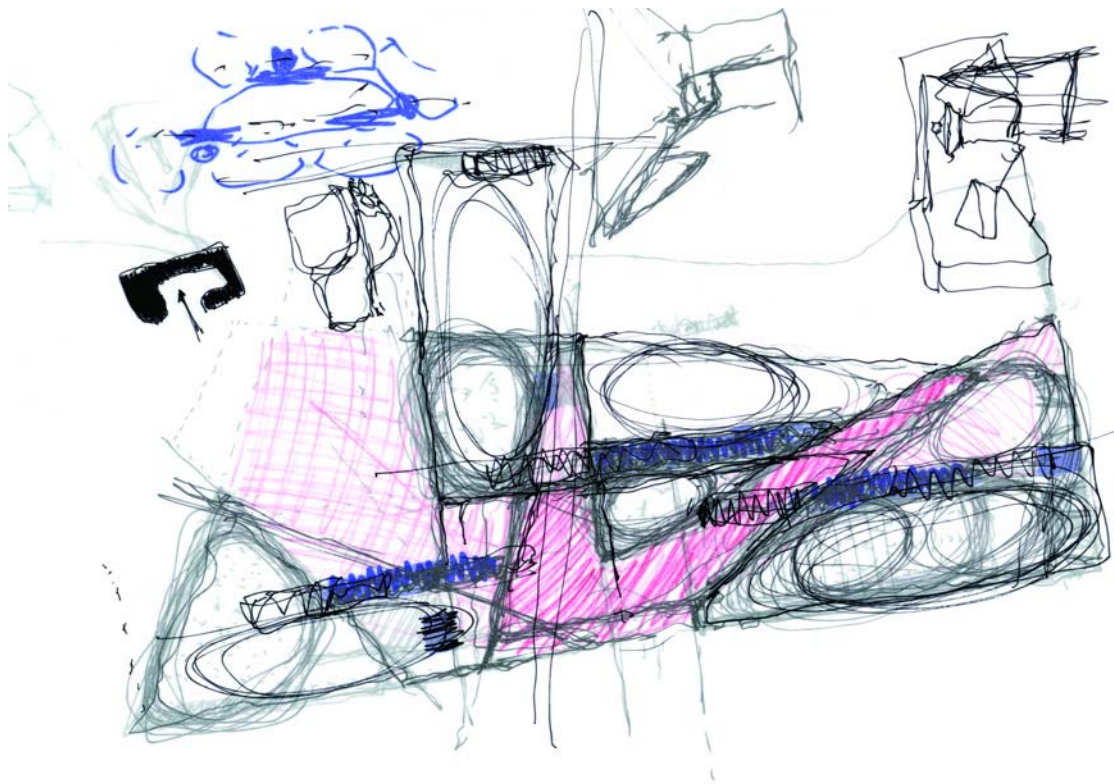


ABOVE LEFT and RIGHT: Box Scheme, model views

opposite:
Box Scheme, plan diagram

ME: Beyond the budgetary impact, this iteration began to address some of the organizational issues of the earlier schemes. We realized we could not distribute studios and faculty offices in a scatter diagram; it was just too expensive. Instead, we organized the faculty offices and circulation in a linear pattern through the open studio spaces. We maintained the idea of people seeing across and moving by each other through space, but this was no longer a function of the plan. Now, regardless of the exterior form, the burden would be on the section.

MS: Conceptually, this scheme is identical to the final building. The only difference is that this simple box did not take advantage of its site. It did not have the specific interior/exterior relationship of the earlier schemes. It retreated from all of those issues with the exception of the front entry. The basic circulation pattern is there, but all the other site dynamics are compromised.



Conceptualization of
programmatic pockets

opposite:
Lines of influence bisecting
building geometry

SCHEME C (MODIFIED BOX)

DY: As we moved forward, we looked for ways to reintegrate the site analyses into the box. We soon noticed an interesting condition we had not explored: the actual shape of the site. Though a strange and perhaps even ugly plan shape, we were confident that this very simple site perimeter extrusion would result in something unexpected.

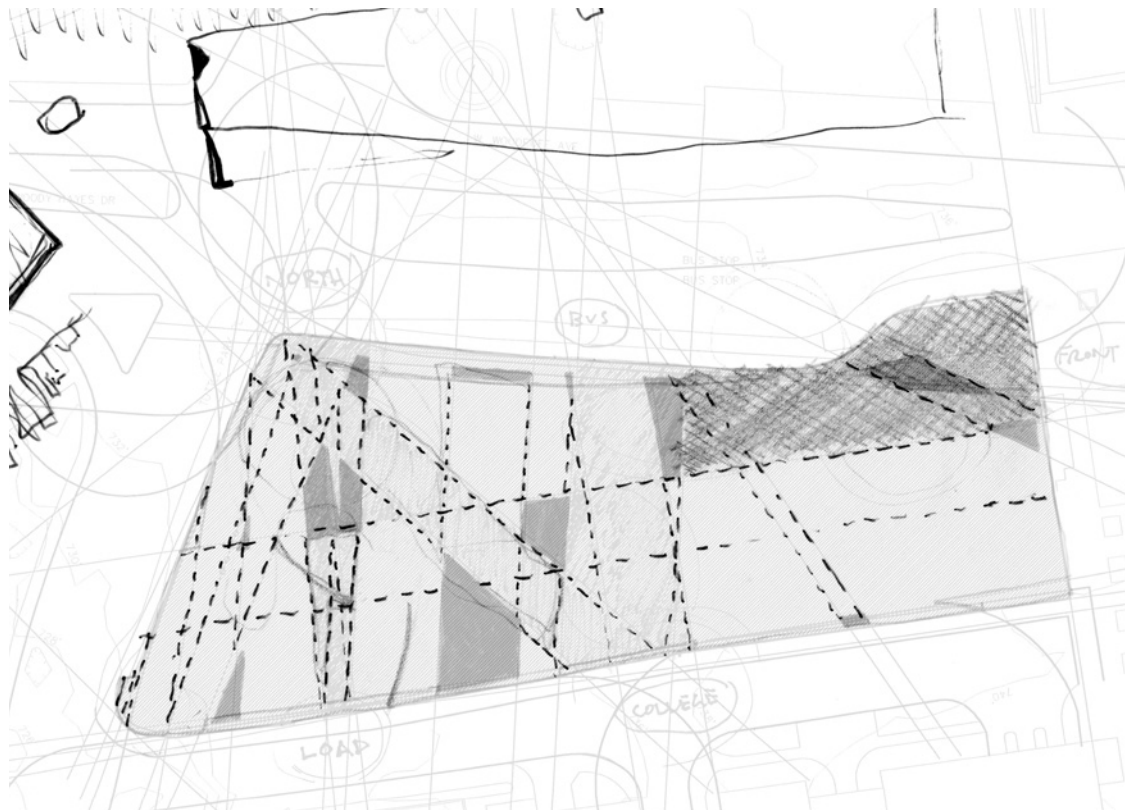
MS: The regulating lines are generated from the shape of the site. We are not concerned with the specific meaning of each of the lines. David could explain to you exactly the geometry of the building through the lines, from form to structure to detailing. But it is not a linear process; we do not adhere religiously to them. Rather, our method is to invest the building with the site condition.

RL: The lines act as a modulator for the project. They allow you to get away from regular grids,

which was an interest from day one. Grids are so ubiquitous in architecture that one simply accepts them. You wanted to find a way to deal with it in a different way, and these lines give you a way to do that—they modulate the architecture differently. As a result, the building never falls back to typical planning principles.

MS: Rob is absolutely right. The fundamental reason to do those lines is to justify a departure from the grid of the campus. This site had so many different organizing systems—the roads, paths, and such—that one does not have to resort to a grid here, in fact, we felt the grid was the wrong thing to do.

I think it is fair to say that part of convincing the larger constituencies of the university that this should be the design was that those lines began to explain how this site is different from the rest of the campus. The project had to be a departure.



ME: This process is a partial fulfillment of recognizing that a site constitutes a much larger condition than the immediate boundaries of a building. Site can be interpreted as an enormous world with many different conditions, influences, political players, and cultural and economic factors. All this must be taken into consideration when one analyzes and thinks about a site.

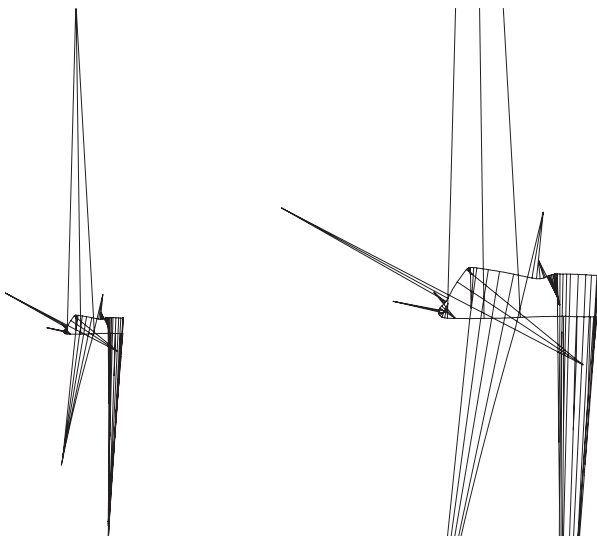
MS: We wanted to recapture the dynamics of the site; it was as simple as that. In the box scheme, we realized we could still achieve the dynamics of the program, but that we had lost the opportunity to directly engage the site. So we decided to change the box. Rather than a simple box, we extruded the shape of the site. Surely that would not cost much more than just a rectangular box. [laughter]

What was that, Bob?

BW: At this point I am just going to agree with you.

STUDENT: Was the salability of the idea an important consideration? In your previous work, say at Pittsburgh or Laban, it seems to me that formal justification was not a particularly strong motivator. Why did you feel the need to justify this particular project in this way?

MS: Each of the projects you mention is invested differently in terms of their scope, their influence, and their texture. In other words, Pittsburgh was a set of individual buildings organized by an urban grid. Laban was located in a nongridded, industrial condition. The OSU campus has a master plan that was completely invested with professional analysis. Many architects would bring the same type of analysis to every project they do. But as you point out, we do not do that. Instead, we try to approach each condition in a specific way. I leave it to you to decide whether this is an asset or a detriment.



DY: We worked backward from the given outline of the site, and its shape generated more regulating lines. We identified the center points of the various curves that define the property and connected the end points and midpoint of each curve to their centers. Then, those lines are extended to generate a complex matrix. What does this give us? Maybe it gives us a way to place the structural system.

ME: These lines become an internal logic for the building that was born from the shape of the site.

DY: One has to be true to what one has. We could have just drawn a line around the site and said, okay, now we have a box, and filled it with a gridded column system. But we chose instead to wipe the slate clean. The lines set up a rigorous framework for the rest of the project.

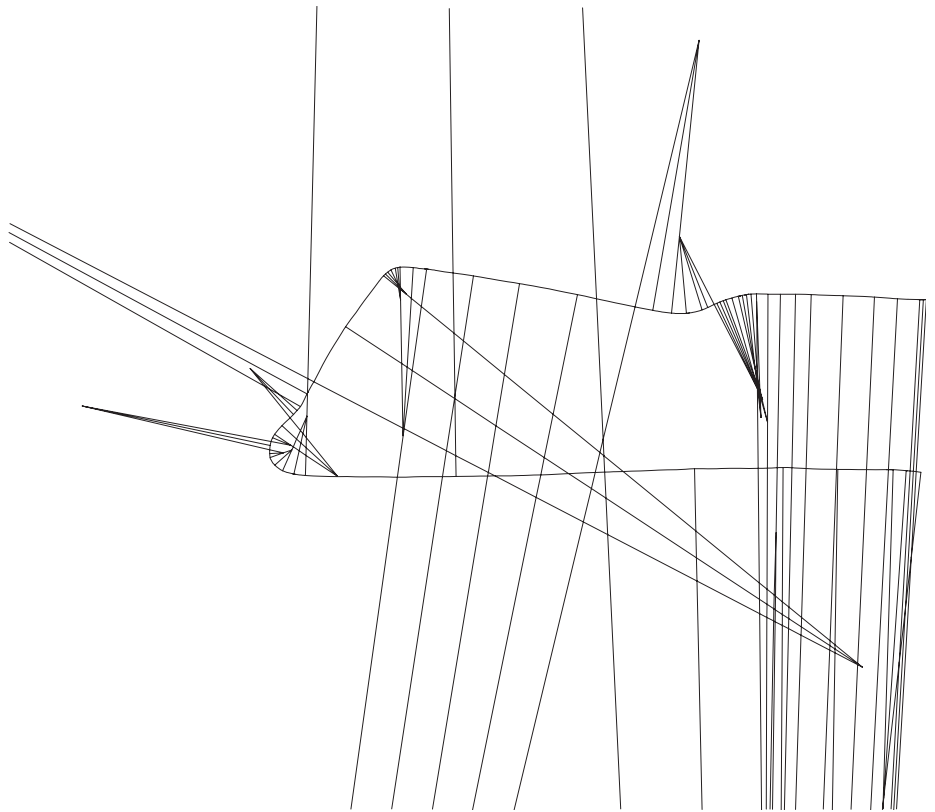
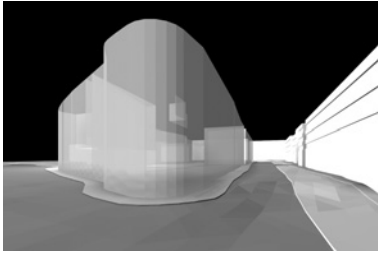
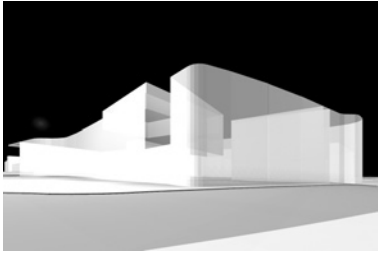
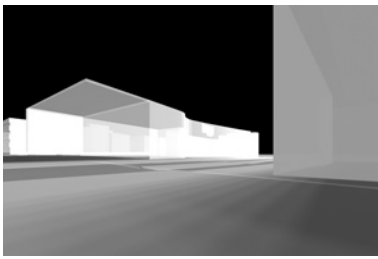
MS: This framework of the site-shape-generated lines combined with the lines of influence guided

the development of the plans. In these diagrams you can begin to see how we defined major spaces and the cuts into the building. Not as aggressive or geometrically radical as the previous scheme, but we were still concerned with the same subject matter.

RL: Another thing about the generating lines is their systematic quality within the building. From the beginning, Mack and Merrill wanted multiple systems—the generating lines, the inclined planes, the skins. These systems come up in different forms, but they come up over and over again.

MS: That is true.

TG: And the goal is never the legibility of those systems. I think this project is about using the dynamics of the context and the constraints of the problem to create as many different kinds of spaces as possible.



The extruded site form becomes the wall. The cuts and the recessed surfaces resist the extrusion and, hence, the wall.

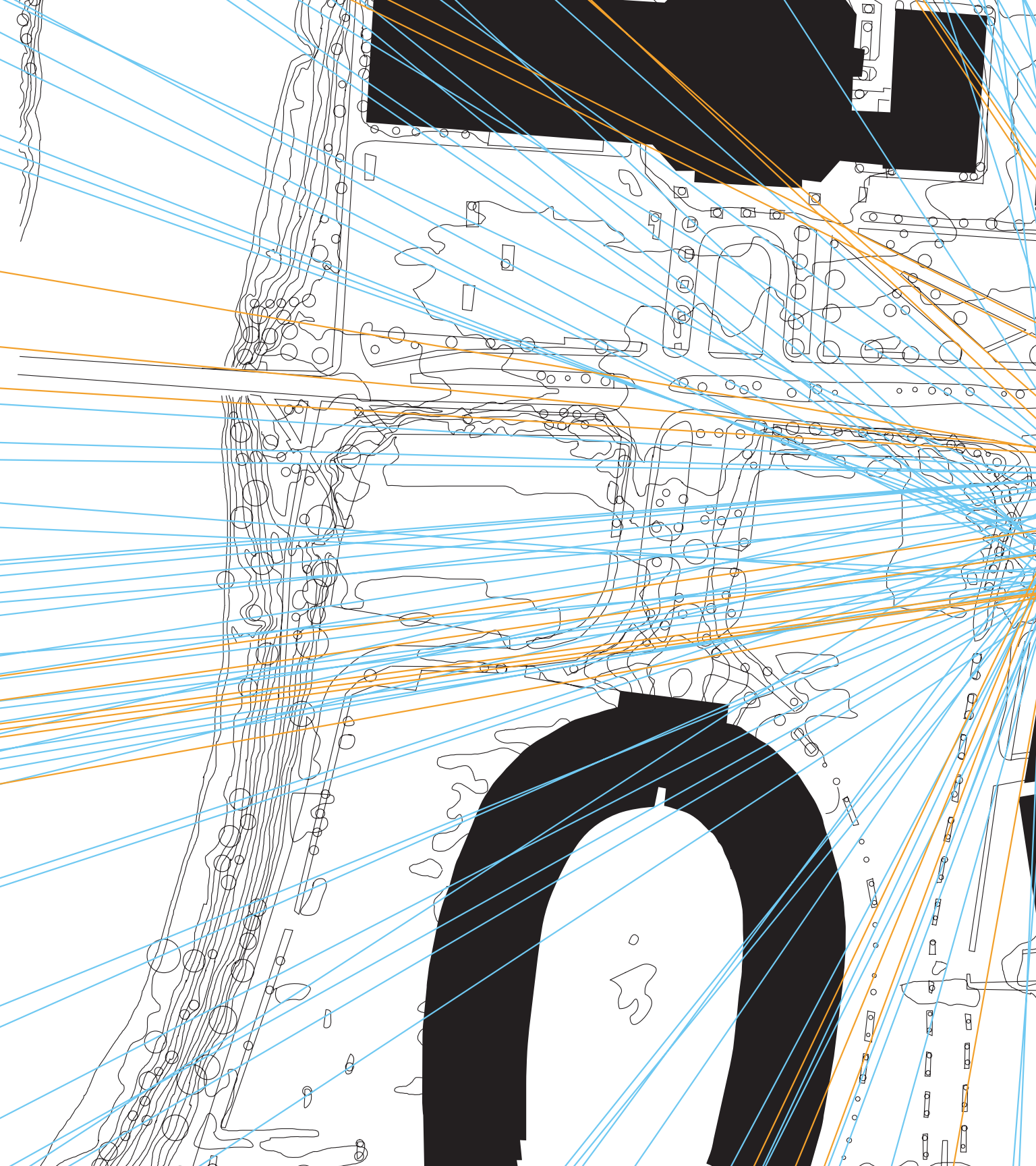
ABOVE, LEFT COLUMN: Computer model of extruded site boundary as building envelope
 ABOVE RIGHT: Site geometry, perimeter arc endpoints and midpoints extended beyond site

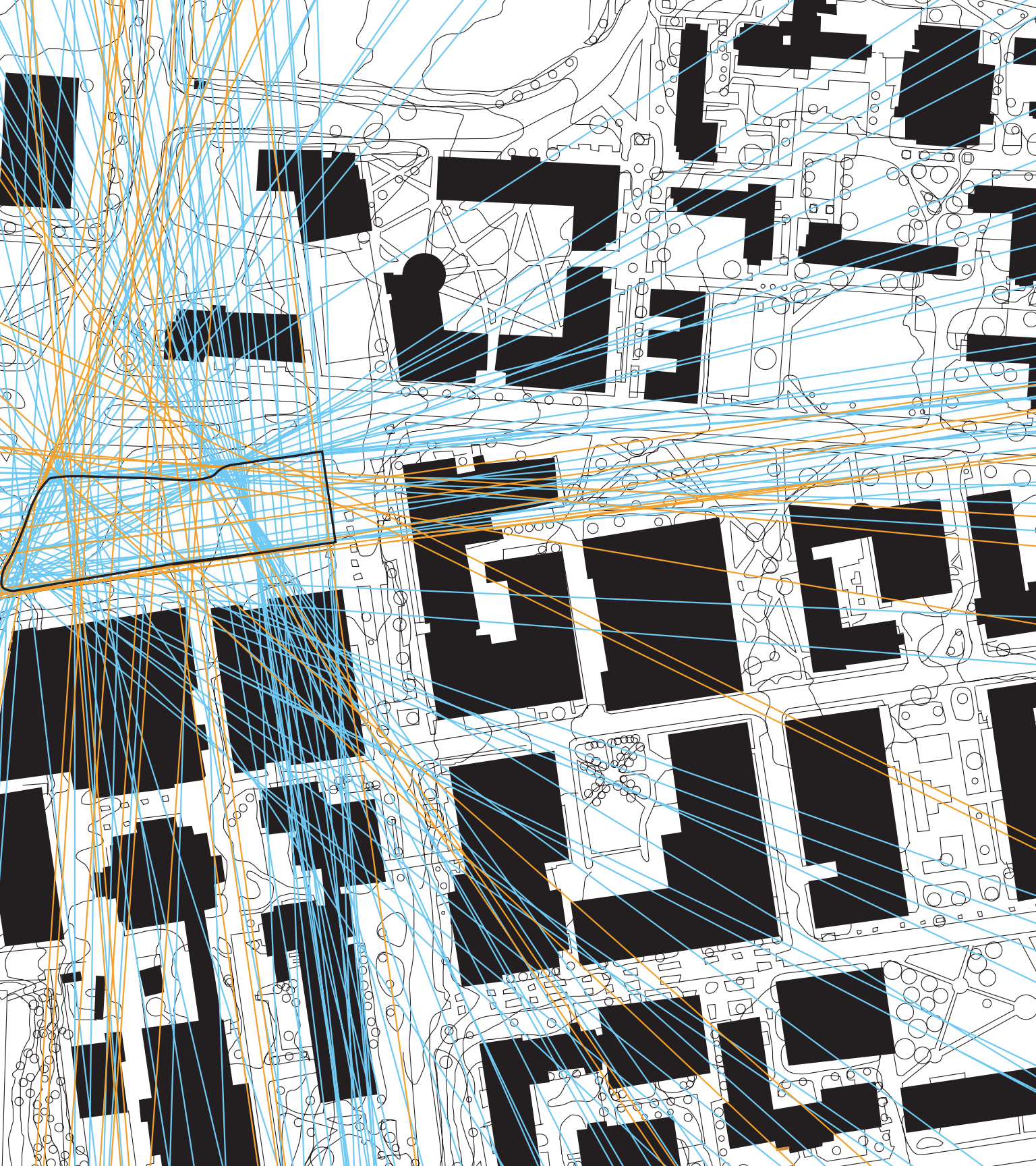
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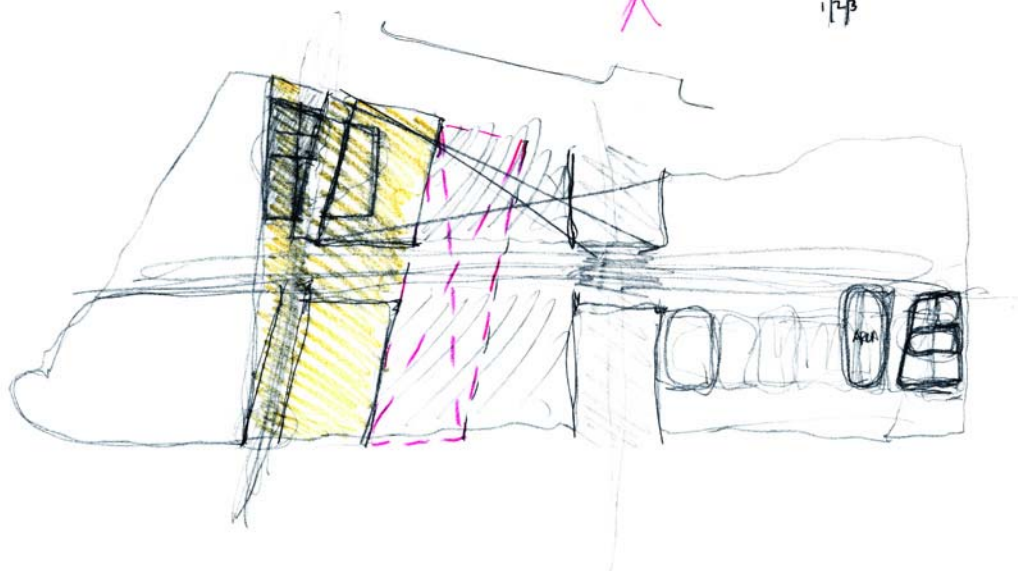
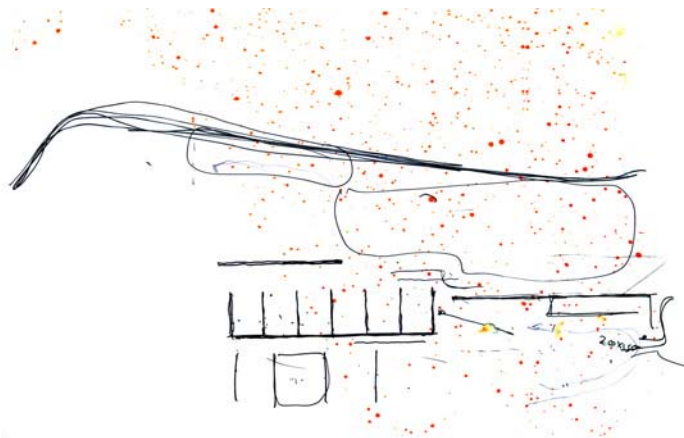
LEFT and RIGHT: Site geometry, perimeter arc endpoints and midpoints fully extended beyond site

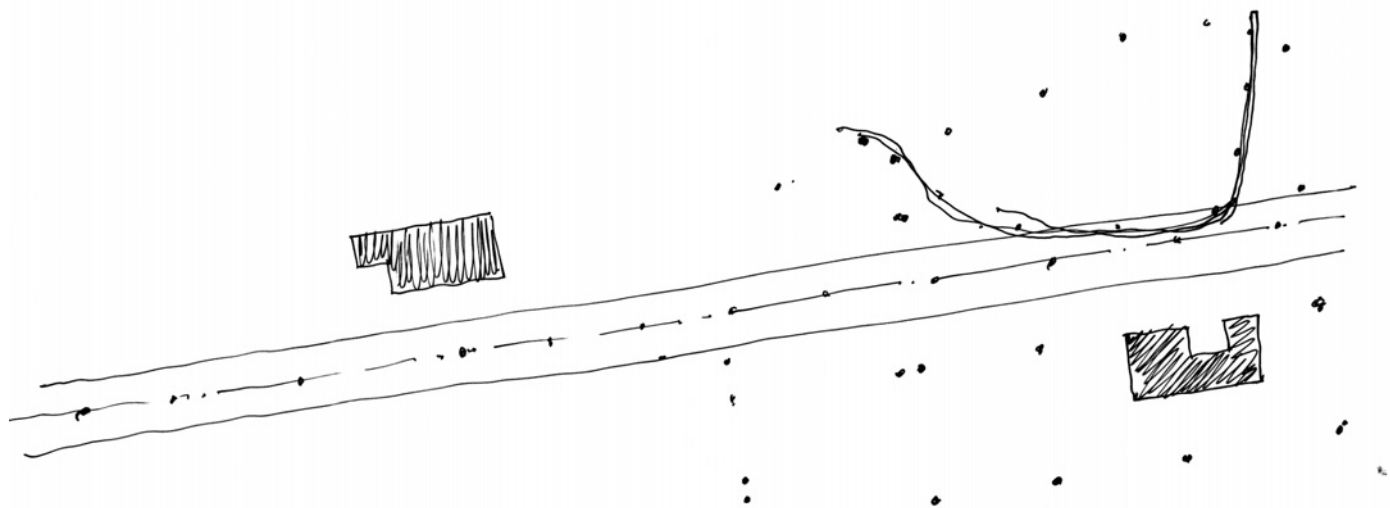
pages 64–65:

Geometry lines and lines of influence on site







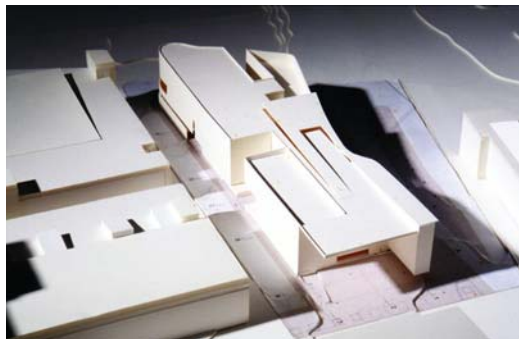
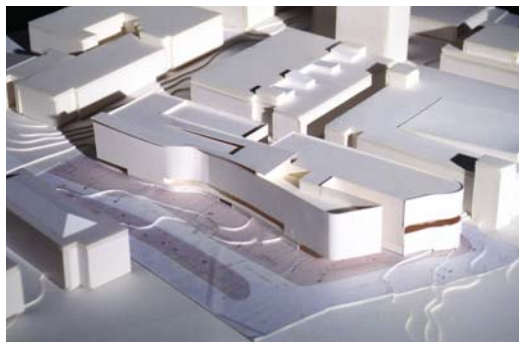


Structure/inclined plane study

opposite:

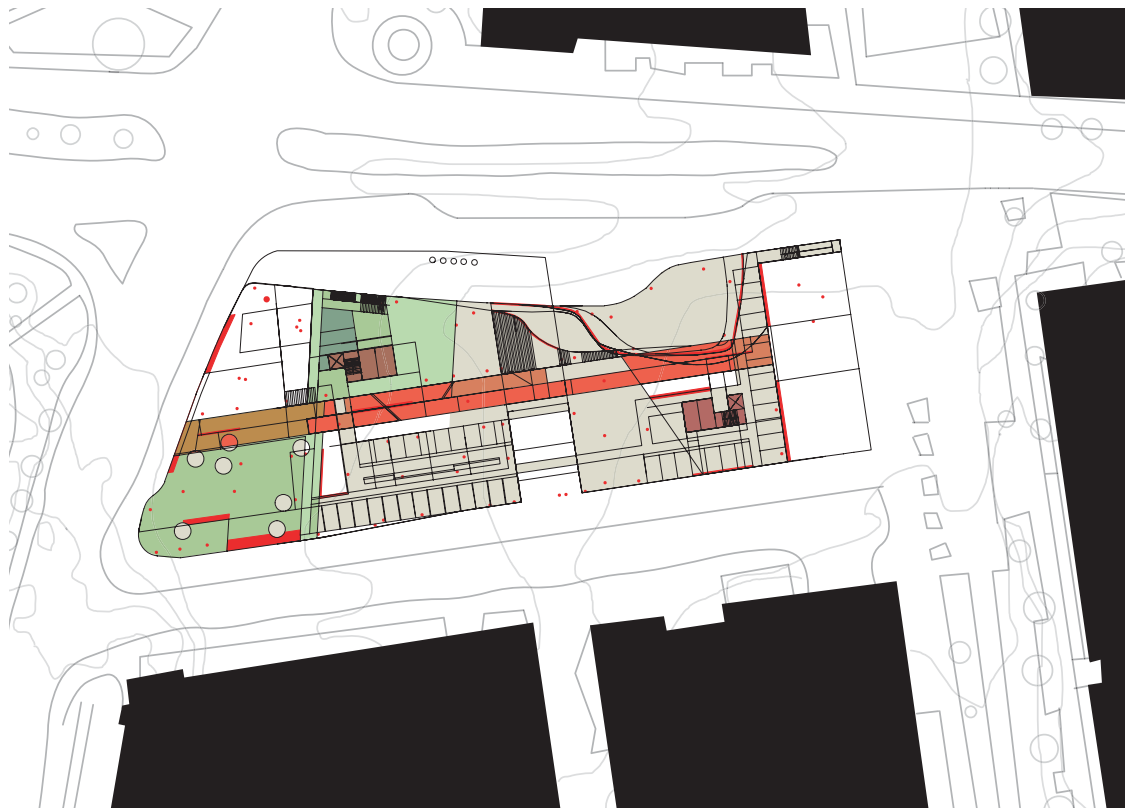
TOP: Initial study of program within site extrusion

BOTTOM: Study of early inclined plane bisecting building



TOP, CENTER, and BOTTOM:
Scheme C (modified box), model views

opposite:
Scheme C (modified box), composite plan



To me, it seems that the creation of an immersive environment and an encyclopedia of formal conditions is the goal, and the possibility of legibility is the fallout. This is exactly the opposite of Eisenman's Wexner Center, where the project is all about legibility and spatial complexity is the fallout. Here, the analysis is always driven toward the space. If the legibility of that analysis falls away, I don't think anybody cares.

of spatial complexity within the building, I think its simple organization is a real asset.

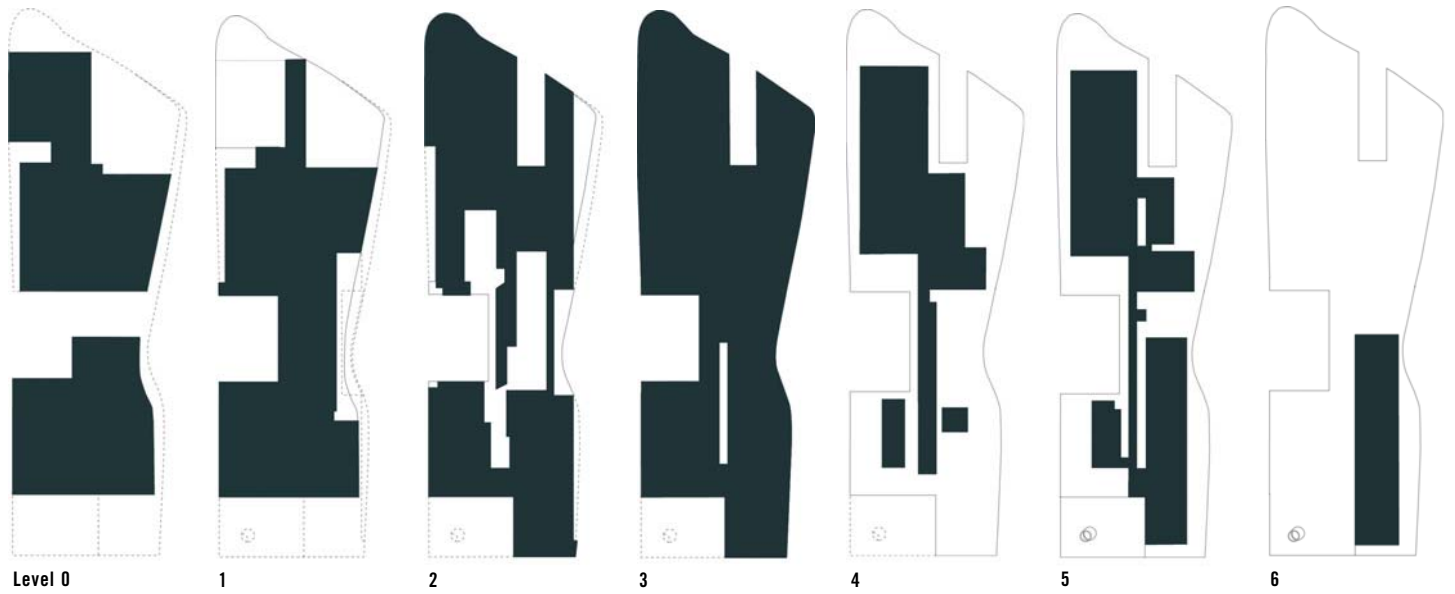
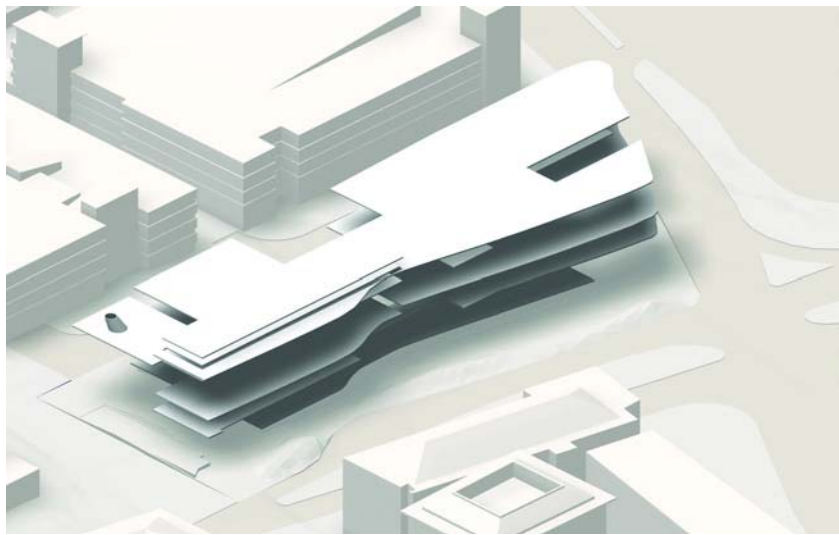
MS: That would not have happened in the earlier schemes.

MS: I think you are right. In fact, I feel one of the strongest qualities of the building is the dumbness of its systematic plan. I don't think the plan is legible in the experience of the building. That is very exciting to me.

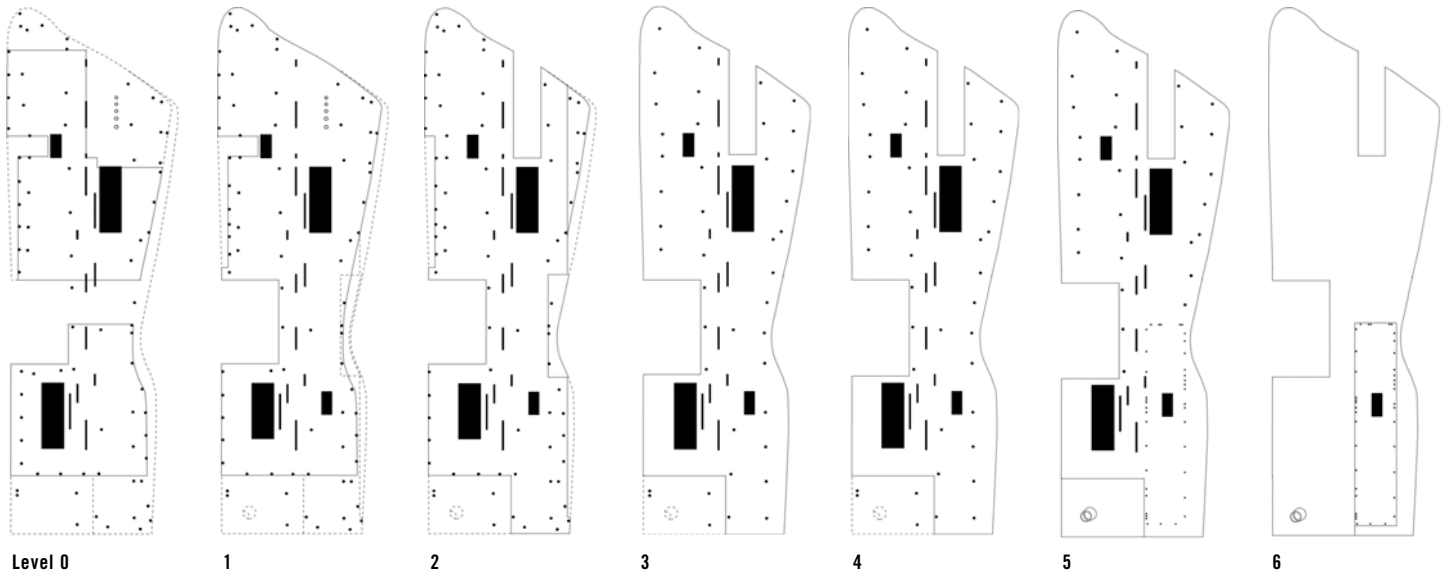
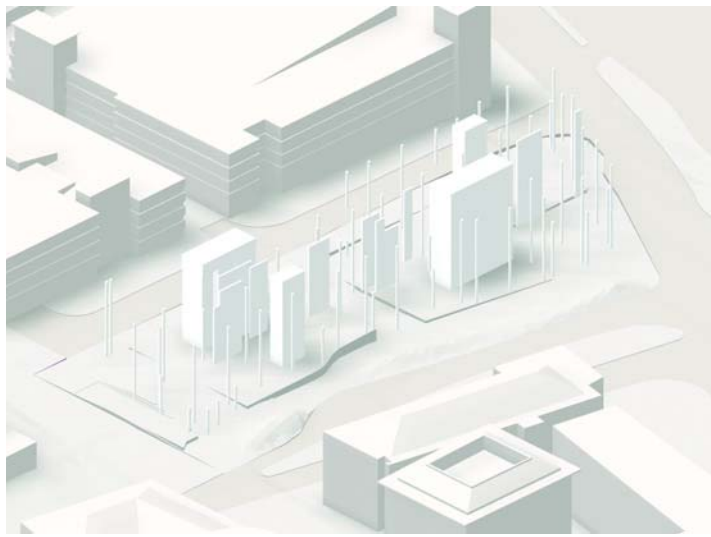
RL: I see it differently. I agree that the dumbness of the plan is not the experience of the building, but it is an understanding of the building. I find it wonderful that both of these very different experiences operate within the building. Given the range

DESIGN DEVELOPMENT

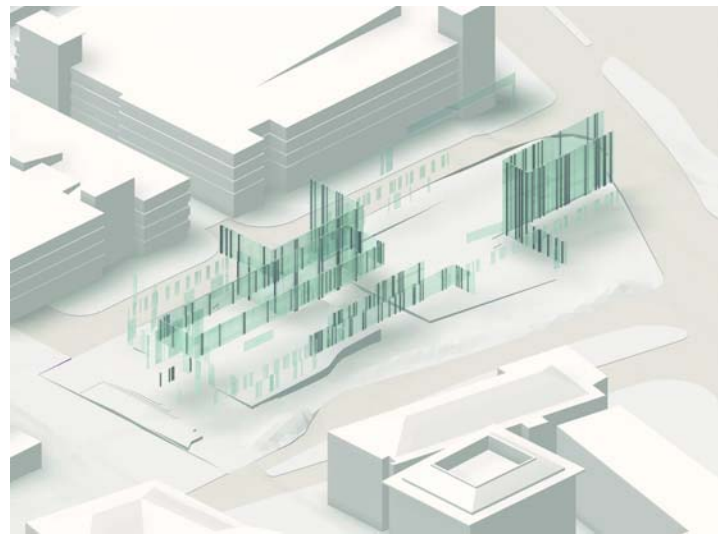
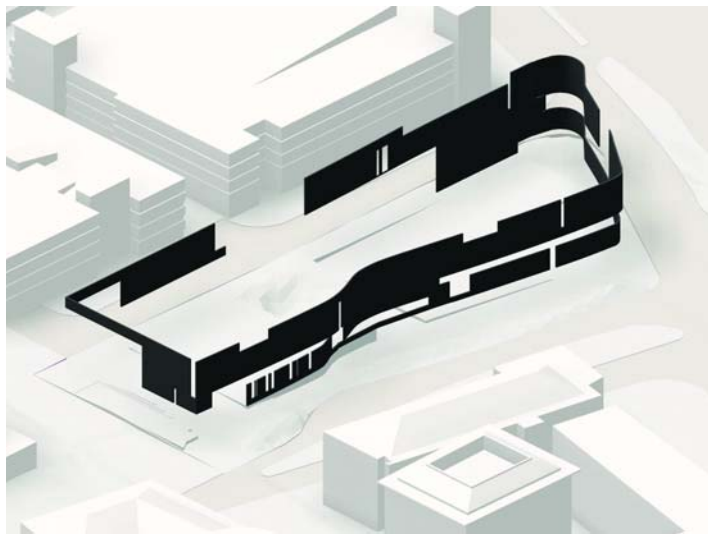




TOP: Computer model of floor plates
 BOTTOM: Plan diagrams of floor plates and voids



TOP: Computer model of structural elements
 BOTTOM: Plan diagrams of structural elements

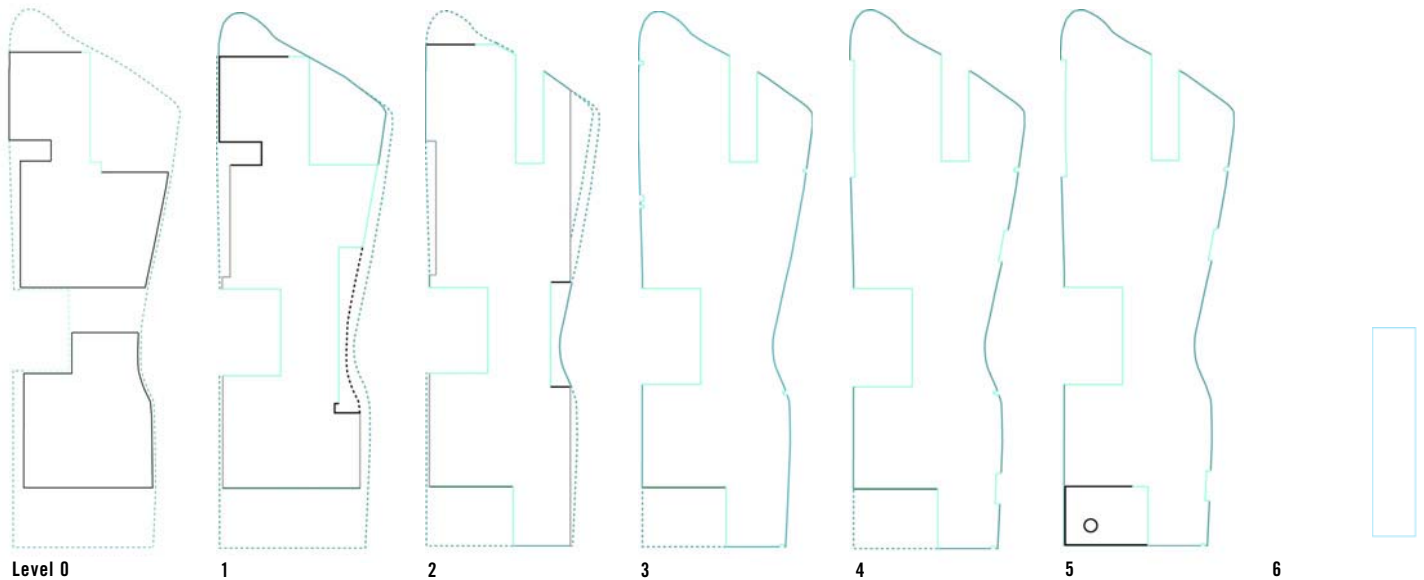


Economies of construction necessitated a limited palette of standardized systems of building materials and techniques. A strategy for deploying normative systems, materials, and techniques in unusual or irregular and unique methods was devised—a strategy to rescue the building from its own destiny of banal systems, from the banality of the normative.

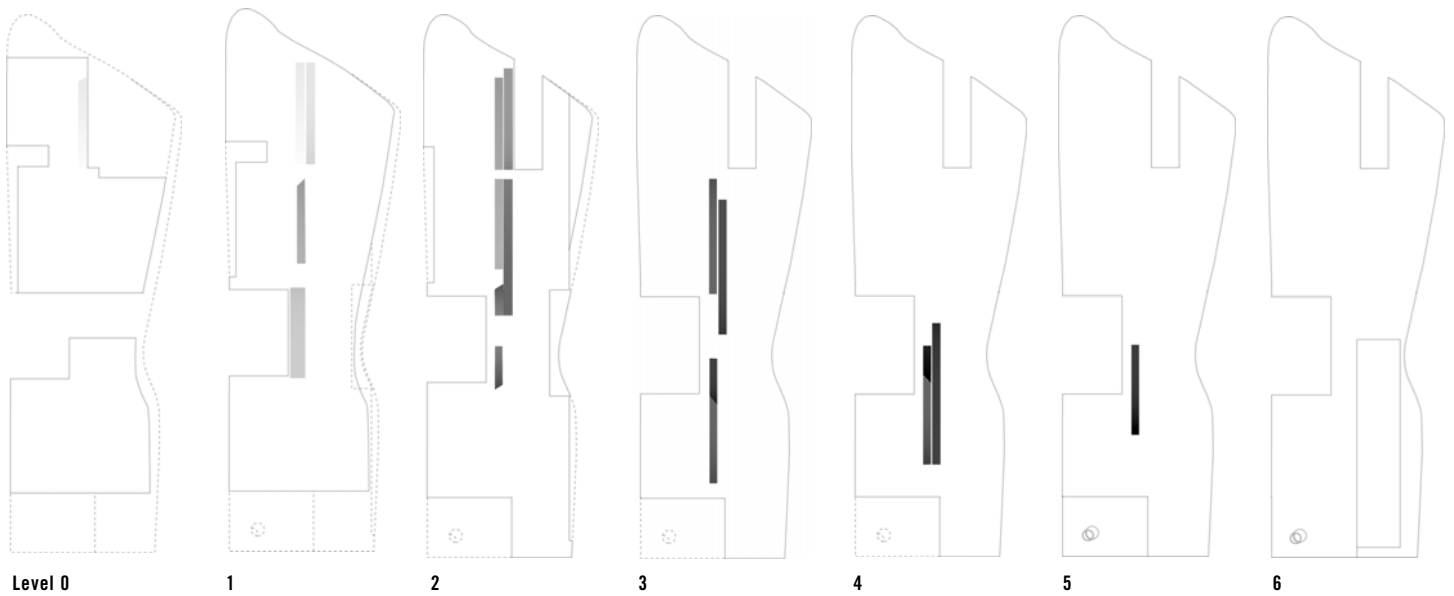
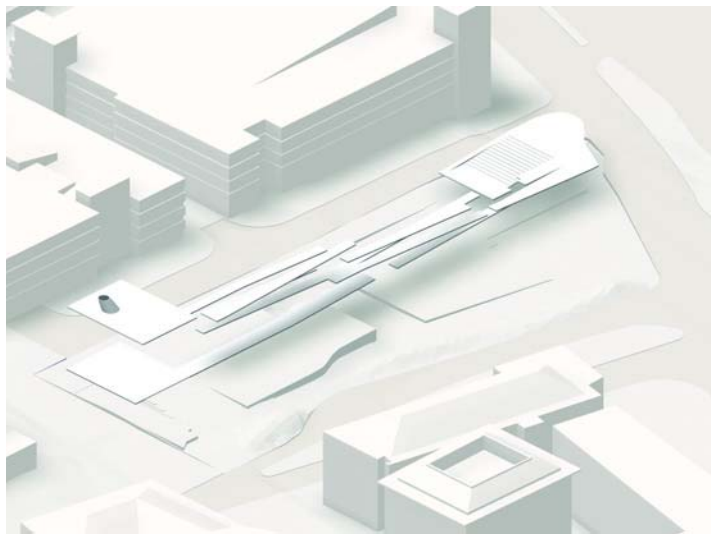
■ Marble shingle rain screen cladding system
■ Gray glass/Concrete system

■ Flat marble cladding system
■ Concrete

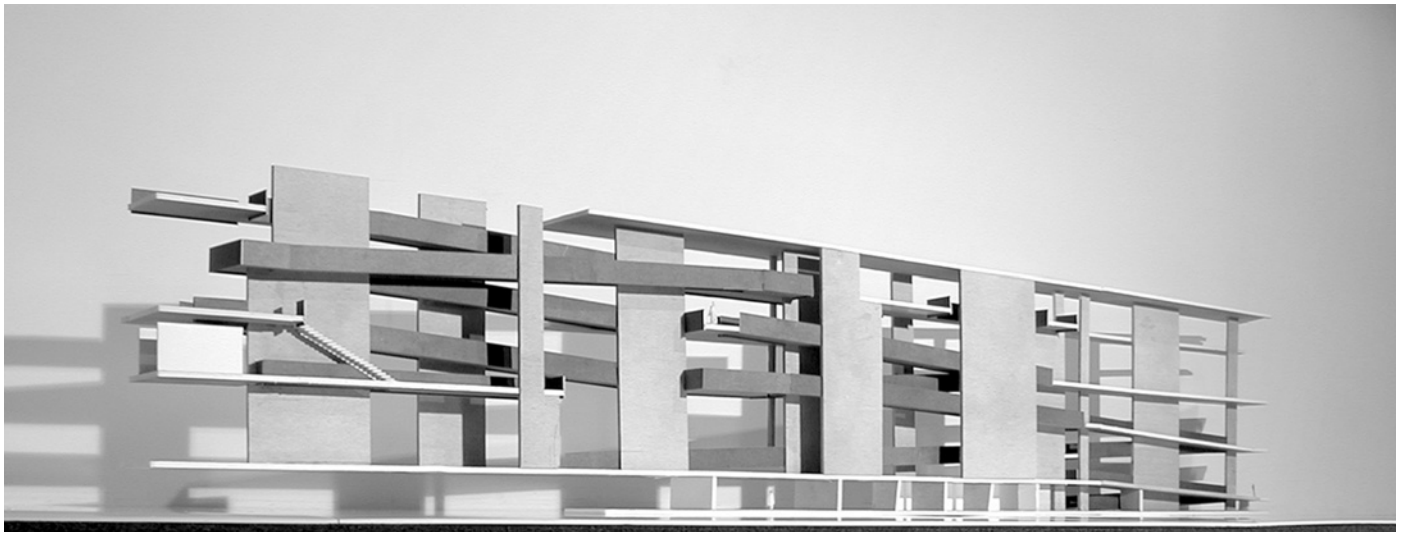
■ Glass/Clear curtain wall system
■ Glass/Translucent



TOP LEFT: Computer model of marble shingle locations
TOP RIGHT: Computer model of glass elements
BOTTOM: Plan diagrams of perimeter cladding systems



TOP: Computer model of inclined plane system
 BOTTOM: Plan diagrams of inclined plane system



Model of inclined plane system

INCLINED PLANE SYSTEM

The system of inclined planes was the device used to organize the two initial studies (see Preliminary Design section). It remained constant through all iterations of the project, always operating in multiple ways—negotiating issues of accessibility, sponsoring community, affording visual connectivity, resisting the big building problem of the disjuncture of program elements, challenging the mechanical mindlessness of the elevator, mediating the thickness of the plan, and making public and dancelike the negotiation of the building’s vertical aspect.

The inclined plane is a linear tentacle rising and flowing, joining solids and voids, people, program, and projects—a mixing apparatus.

INCLINED PLANE STATISTICS

1,280'-4" linear feet

8,712 square feet

8'-0" and 16'-0" wide

1'-0" thick

60'-0": vertical rise

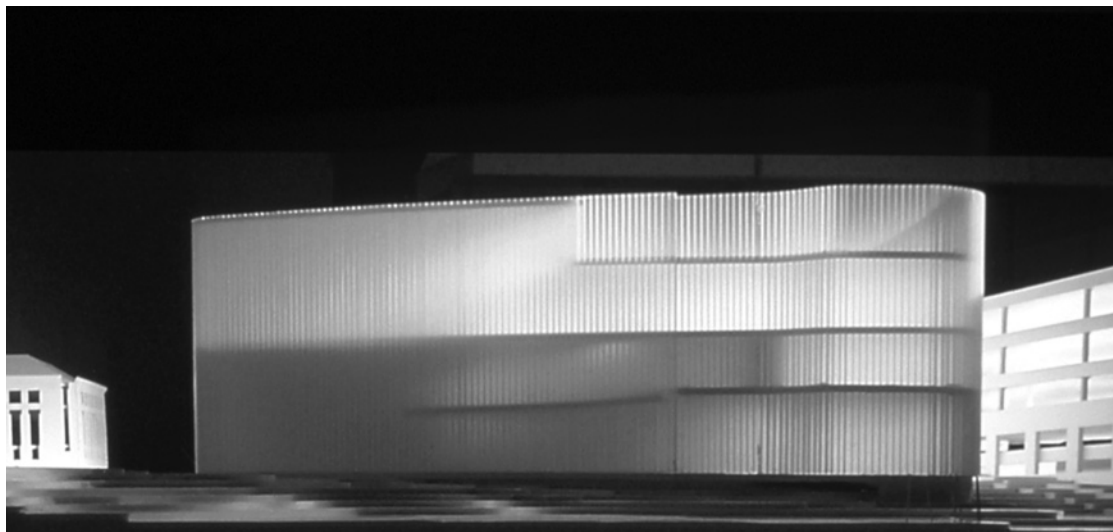
140'-0": longest run

60'-0": shortest run

791'-0": upper elevation

731'-0": lower elevation

1:20 inclination of planes

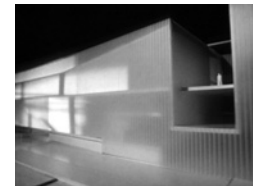
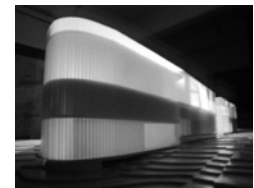


LEFT and RIGHT COLUMN: Model views of glass-cladding study

opposite:

LEFT COLUMN: Cladding pattern studies—slate sculp and terra cotta

RIGHT: Model views with slate sculp cladding



the upper wall and studio level conforming to the shape of the site. We wanted to make sure that the studio level felt like a school environment rather than a factory floor. To do this, we devised a variety of spatial experiences by splitting the studio floor into four parts with a seven-foot difference in elevation. This split creates a crisscrossing of the section and gives each quadrant a sense of spatial autonomy without walling them off from each other. Everyone is essentially on the same floor, but it does not feel that way. It is a remarkable effect. It never occurred to me that the zone would be quite as dynamic as it is—traveling from one studio to another feels like going from one building to another.

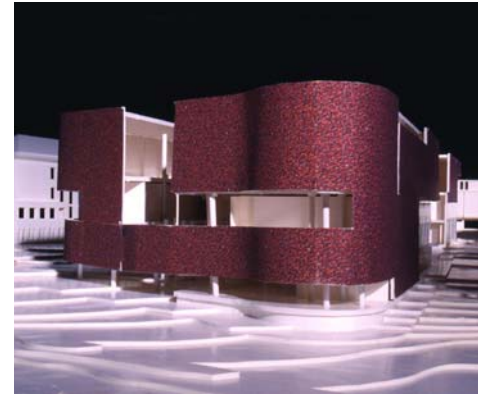
★★

MS: We should not dwell on the issue of the donor, but I think it is an important issue in terms of understanding the building. As part of his gift to the school, the donor requested that the building be

clad in white marble, a difficult requirement both for us and for the university to accept. Though marble is a traditional material, it was a significant departure from a largely brick campus architecture. We surveyed the campus and found marble—one door threshold and a bench on the oval. [laughter]

Marble is not a very good building material in thin pieces as it is used today. It is a very porous material that spoils and pits over time; the caulking joints erode. It moves quite a bit, and it tends to warp if it is not thick enough. Of course, it is also very expensive, and we could not afford the thick slabs required to build with it correctly.

The university challenged us, in the most positive way, to come up with an alternative with which we might change the donor's mind. We investigated a number of alternatives—slate, terra cotta, glass. An early idea was to clad the entire building in glass, a glass box that would move from clear to translucent to opaque vertical glass channels. It would have been spectacular.



Even if we could have afforded it, the building could not have been all glass. Programmatically, we were attempting to react to changing norms within the studio. Collective work space in the studio was privileged over large individual work stations. The studios needed generous pin-up space.

Given these parameters, much of the exterior would have to consist of solid walls. What does one do with that? If not done carefully, one might produce a really huge, oppressive building. So how does one enliven it, and enliven it without much money?

Again, the investigation turned back to our experience at Laban. There, we wanted to produce a building that was, in many different senses, light. Our friend, the critic Dave Hickey, suggested that to do that, we should make the building really heavy. A similar idea drove the investigation for this building. We began to look at ways to put masonry on the building in a way that would question the material's weight. We wanted to suggest a mysterious quality; it could not be a dumb skin.

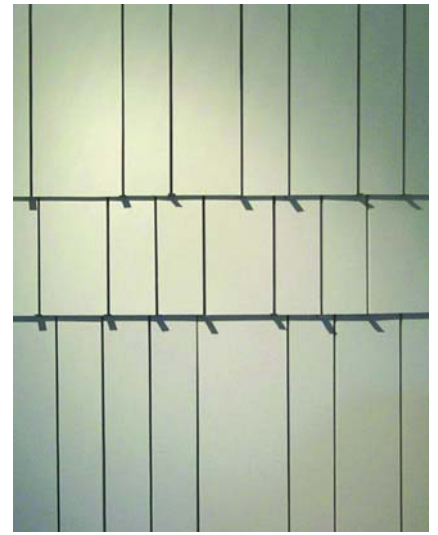
We were very intrigued by the possibility of using slate sculps. Sculps are the cut ends produced as the stone is dressed; normally these pieces are thrown away. We proposed to cut them up and stack them like brick. We experimented with various sizes, colors, and combinations.

The terra cotta proved most affordable of all the cladding materials we explored.

**

MS: After two years of working on alternatives, it became clear that the donor would not be swayed. In the end, he said, "Look, you want my donation, I want the marble." Both the university and the school realized that in order to get the building at all, they needed to embrace the donor's wishes.

The only reason I mention this at all is that it raises an important ethical issue. We were asked to do something that we thought was not the best solution. We felt strongly that it should be different, but



LEFT: Georgia Marble quarry, Tate, Georgia

RIGHT: Full-scale model of early marble shingle pattern

the reality was that if we did not employ marble, the project would die. There was no way to start over.

So what does one do? We were not about to take an egotistical stand—our design was not so precious that we would sacrifice the good of the school over the exterior material. I do not want to draw it out, but I want you to understand what is at stake in a situation like this. I promise that you will be in that position at some point in your careers. What we felt was best for the client and the context was to get the school a new building, and a marble skin was a fixed requirement. The only way you get out of such a situation, I would argue, is through one's design ability. So we took it on.

MS: This image, the Georgia Marble quarry, in Tate, Georgia (top left), has an interesting relationship to the completed building. These are huge cuts in the rock face, much bigger than the shingles of the building, but if you squint, it looks strangely similar to the facade of the building.

DY: This image also gives you some idea of the patina that may eventually be present at Knowlton.

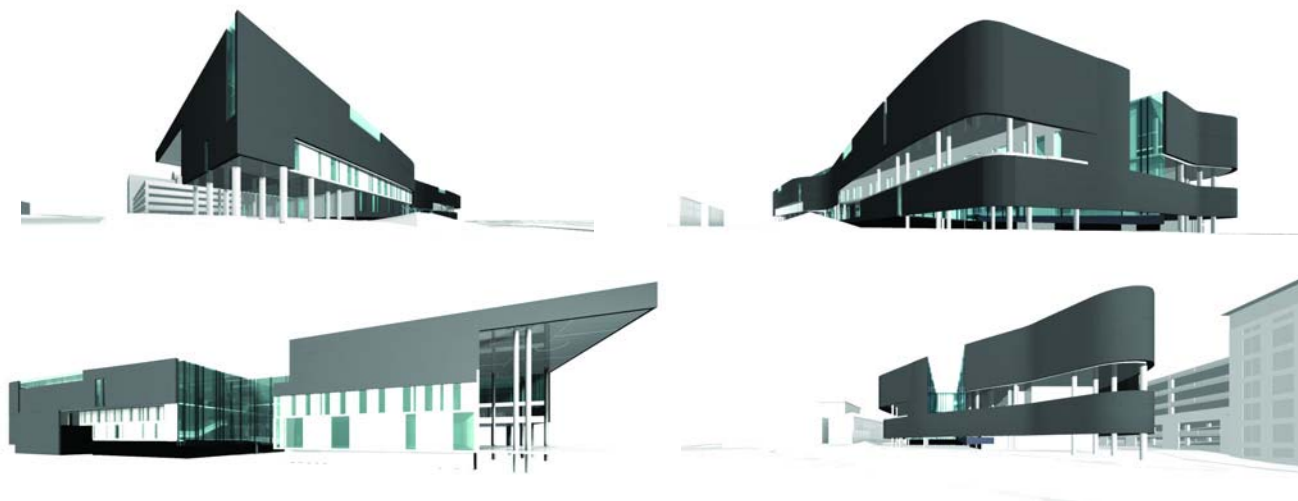
TG: Is that where the final material came from?

DY: No. The final material is a Vermont Danby Imperial White.

MS: At the moment we are working on three buildings that employ similar skin-surface assemblies. Shingles are one of the most time-tested, elegant, simple, and inexpensive skin strategies. It requires no gaskets or caulking or sealing. It is easy to work the units, even around curves, without special forms. The system is not waterproof, but it sheds the water in a very simple way.

**

DY: We felt like we had a spatially diverse and sequentially interesting procession through the



Computer study models

building, but we had a really hard time trying to model it and render it. The building was very hard to represent. We ended up building a huge model. I am not sure that we ever produced a set of renderings that captures the spirit of the building.

MS: We tried every way to represent the dynamics of the section. We can look at these images and project ourselves into them, but we were never able to represent or successfully imply what actually exists out there now.

TG: That's something that keeps coming up throughout these sessions. Have you developed methodologies about how you represent projects out of what you've learned here? Do you still find yourself struggling to represent things accurately?

MS: We are beginning to advance our resources, our hardware, our software, and our own abilities to represent through the computer. But quite frankly, I

do not know if one can ever represent architecture properly, even through photography. Every experience of our work is so different from how it is represented. I do not know what to do about that or how to change it, or even if we should. So the answer is yes and no. The only reason we were working on our modes of representation is really to advance our design capabilities. We are not interested in making better pictures of our work.

TG: One thing that I was struck by in your office was the amount of energy and resources devoted to making models—really big models that you can stick your head inside. It seems that your models are doing the lion's share of the work in terms of design. Correct me if I am wrong, but it seems like the spatial explorations are worked out primarily in these large-scale models.

DY: The models are more of a testing ground. Much of the spatial exploration is initially addressed in



LEFT: Computer model of studio space
RIGHT: Computer model of entry space

opposite:

Model with marble shingle cladding under construction

plan and section. We use the model to confirm or deny those intuitions. Recently, the large models have taken on a greater role, as you suspect. For example, in the Campus Center project at Wellesley College we used large-scale models as a direct design tool. We have had everybody in the office working on the model.

ME: I think you are right. Model making can confirm or deny an intuition, but it is also a liberator. It frees one from the rigor of the plan and section exercise. It is a great advantage to have a three-dimensional thing in front of you, to be able to tweak it just a bit or tear it apart. I do not think it is possible to measure, exactly, the value of that.

STUDENT: Is three-dimensional computer modeling a part of the design process, or is it used only for presentation materials?

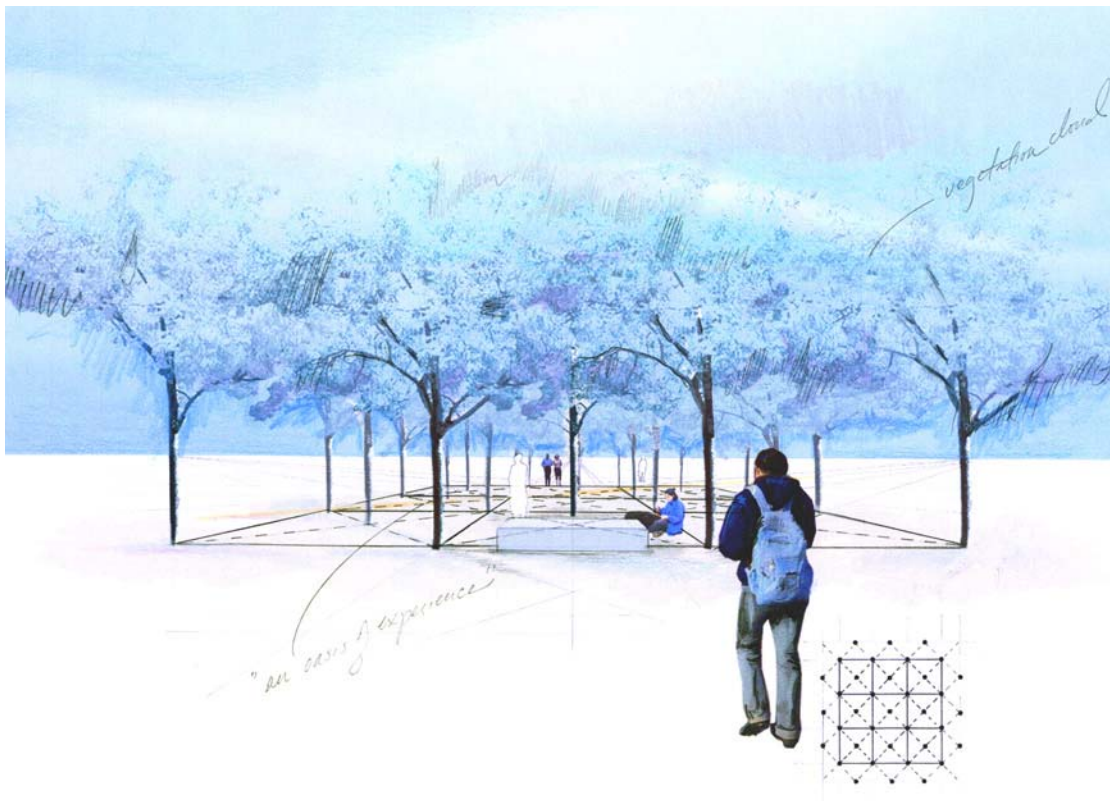
DY: It depends on the project. Since Pittsburgh and Laban, we've designed much more directly in the computer. And we are able to take leaps in the computer with form making that were inaccessible before.

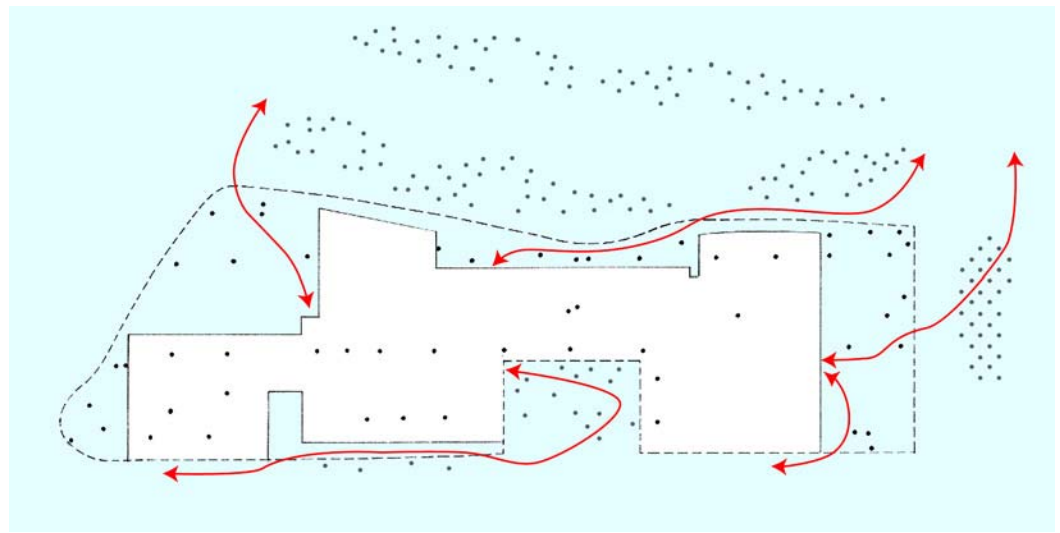
ME: The computer lets you iterate so nicely. Once you get some basics in the computer it is very easy to flip this thing, or marry that thing, or cut this thing in half.

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ME: There is a kind of perfection to these computer-generated drawings that does not speak to the roughness and materiality of the surfaces as you actually experience them. One difficulty of the computer is that it can give you too much information or incorrect or incomplete information beautifully delineated. But these renderings do say something about the complexity of the space and scale, and also some hints about light.







Michael Van Valkenburgh Associates, Landscape scheme, tree trunks, light poles, and building columns form a composite landscape of vertical elements through which entry sequences into the building are formed

opposite:

TOP and BOTTOM: Michael Van Valkenburgh Associates, Landscape scheme, spatial studies of the quincunx configuration of the bosque and the location of pedestrian elements

TG: Tell us about the landscape strategy.

MS: There is very little site left to landscape. To increase the power of the landscape, Michael Van Valkenburgh reconfigured the street, introducing a median and making landforms out of the strips that were left between the building, the street, and the median. These landforms completely transform the intersection, making an elegant entry to the campus. In addition, he placed a bosque of trees to the east of the building. These elements begin to contain space and resonate between the action of the street, the sidewalks, and the building itself. As a result, Van Valkenburgh provided the engagement of the street we initially intended with the cantilevered studios.

TG: Given the original strategy of simply extruding the perimeter and building within it, there is an incredible amount of exterior space that gets within the project.

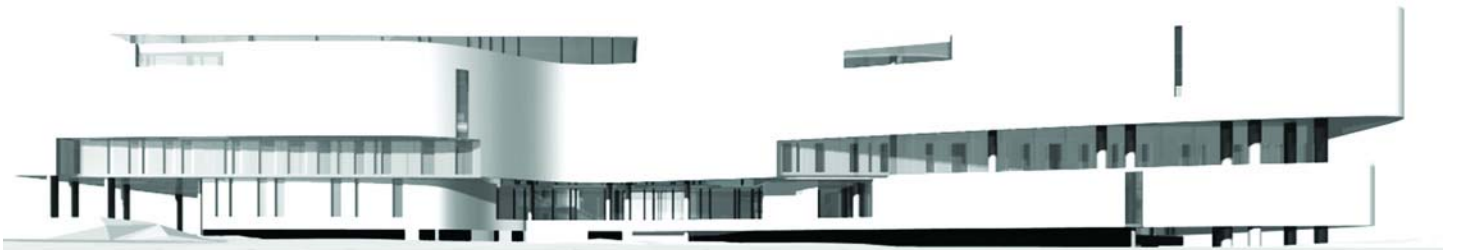
What I find most compelling about the exterior

strategy is how much is woven up through the section of the building. As one travels up through the building, one encounters numerous ways to get back outside, culminating, of course, in the roof garden.

MS: At one moment—and we held onto this as long as we possibly could—every single studio had an exterior workspace. We ended up with only one in the final form, but it is accessible to everybody. But it is true, the cuts into the building are absolutely crucial to the experience. They take that extruded shape and effectively turn it into different buildings.

At some moment, there was the decision to relocate the auditorium from the east end, near the entrance, to the west end. In order to draw people through the building, to engage more visitors with the experience of the section as well as the work of the school, we placed it at the far end of the inclined plane. I think it was an important plan move because anyone who comes here for an auditorium event will traverse that length of the building.

FINAL DRAWINGS



PLANS/SECTIONS

At the roof garden outside the library, the long, slow ascent through the building ends sixty feet directly above where it started. The library occupies a symbolically charged position: it emerges from the superstructure of the building, capturing daylight and radiating light at night. It resides above the studio and the administration and faculty spaces.

Beginning at the formal start, the southeast front entry, the forecourt addresses the Neil Avenue corridor. Just inside the entry is the school's two-level administrative suite. At the second level, the suite extends to the east and, along with the studio above, forms the north wall of the forecourt. The administration has both an interior and exterior presence. The entry opens onto the beginning of the inclined plane system, the center space, and the presentation of the vertical aspect of the interior.

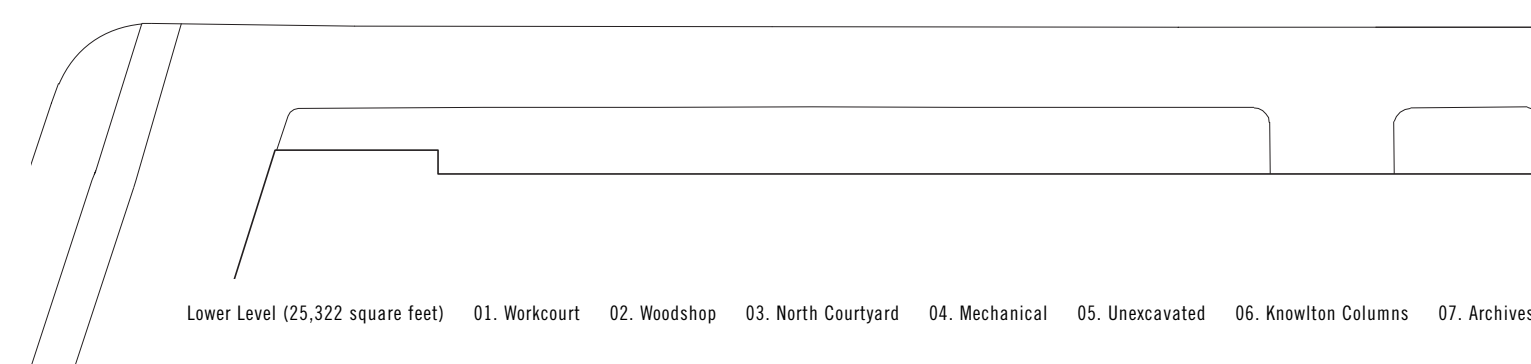
Congregated and stratified program elements are made visible and public by the voids of the floor plates and the tentacular presence of the inclined plane system. Program elements most frequented by guests from outside of the college of architecture are located on Levels One and Two: administration offices, classrooms, lecture rooms, jury space, gallery, auditorium, and cafe. The center space, connecting Levels One and Two, is the primary public forum for the school. The entire population can assemble here and occupy the steps, the inclined planes, the bridge, and adjacent floor areas. The center space accommodates large objects, installations, and presentations. It enjoys a visual and spatial connection to other program elements, to the intersection at Woody Hayes Drive and Tuttle Park Place, and to the business school across Woodruff Avenue.

The orthogonal geometry of the floor plan at Level Two is a vestige of the "box scheme" and a reminder of the economies of construction that necessitate the congregation of like program elements. Long strips of offices stretch east to west, like bars that could be lifted out of the plan individually to make their own separate buildings but that do not. Each bar is suspended within the soft perimeter, creating a porous congestion of the vertical program: a vertically sliced and expanded urbanity.

Level Three houses studios. The floor plate is approximately 150 feet wide and 480 feet long. The sixteen-foot-wide vertical space of the inclined plane system slices the floor plates. From the inclined plane system, looking to Level Two through the slice or Level Three toward the library and computer labs, a peek-a-boo game ricochets around the vertical space and off the walls. Everything is visible, but not simultaneously. The moment the building bulks up at Level Three, it falls apart—thinned down, almost fragile—sliced by the inclined plane system and punctured by the west and south cuts and the forecourt.

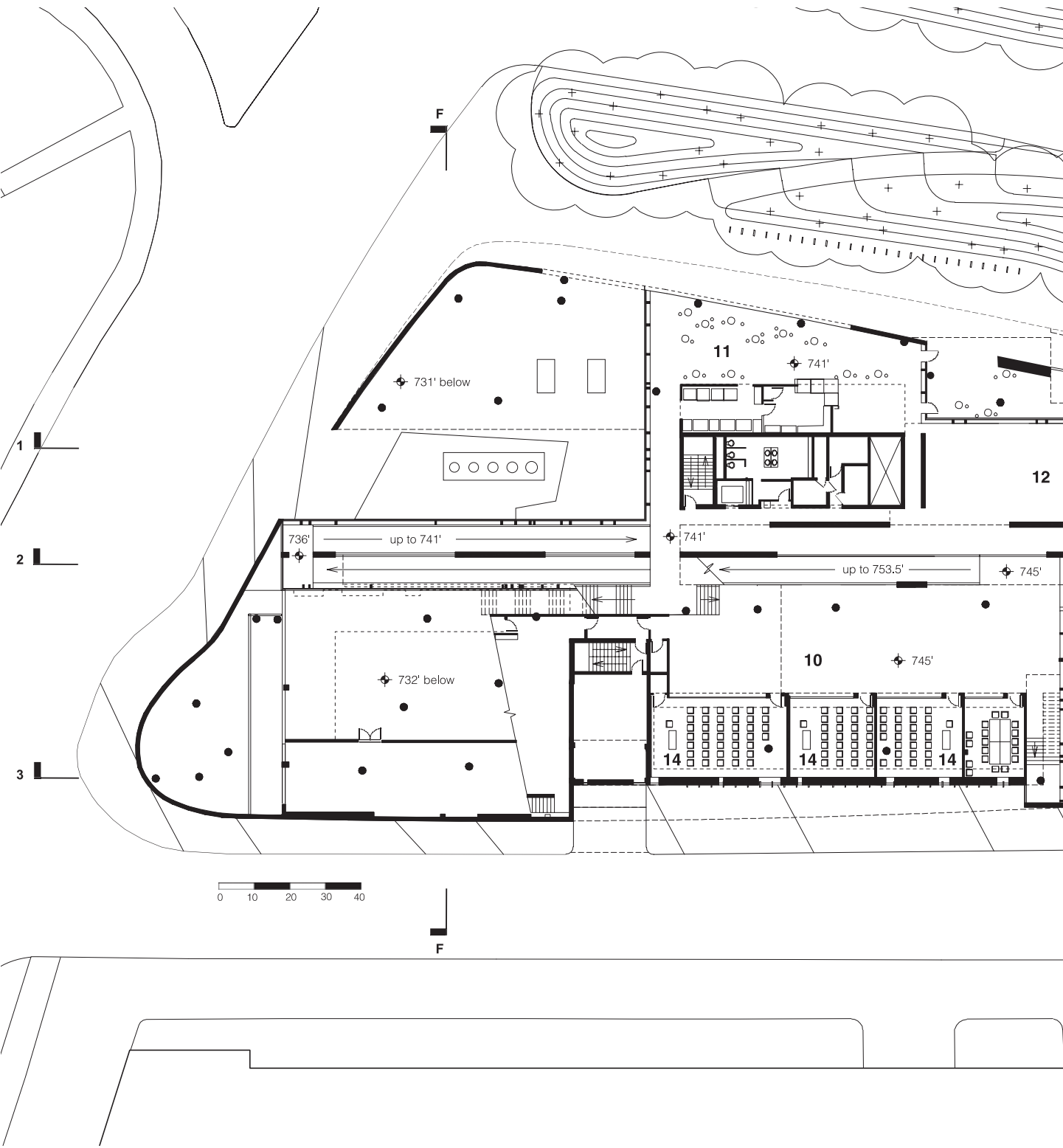
At the heart of the studio configuration is an idea about computers, light, and architecture as a public act. The perimeter wall is washed with natural light; it is never a one wall/one window/one person—Saint Jerome in his Study—relationship. The windows, walls, views, and light are shared territory. Desks with their computers are clustered within the depth of the plan where light is contingent. The perimeter wall provides a vertical forum, where the student can pin-up, present, project, and participate in the discourse. The wall, the computer, and the space are a potential waiting to be used, creatively engaged, abused, enjoyed, and feared. A simple line drawing pinned to the wall or a jumbo projection—the invitation is implicit. Conversations at/in/on/by the wall are one with the pedagogy of an architecture of possibility, where there is freedom of exposure and of absorption, and the balance of the collective effort and individual effort are tested.

At Level Four the computer labs, Ph.D offices, and City and Regional Planning cling to the tentacle of the inclined plane system, hovering over the space of the westerly studios. The library and the roof garden reside at Level Five, and the library mezzanine constitutes Level Six.

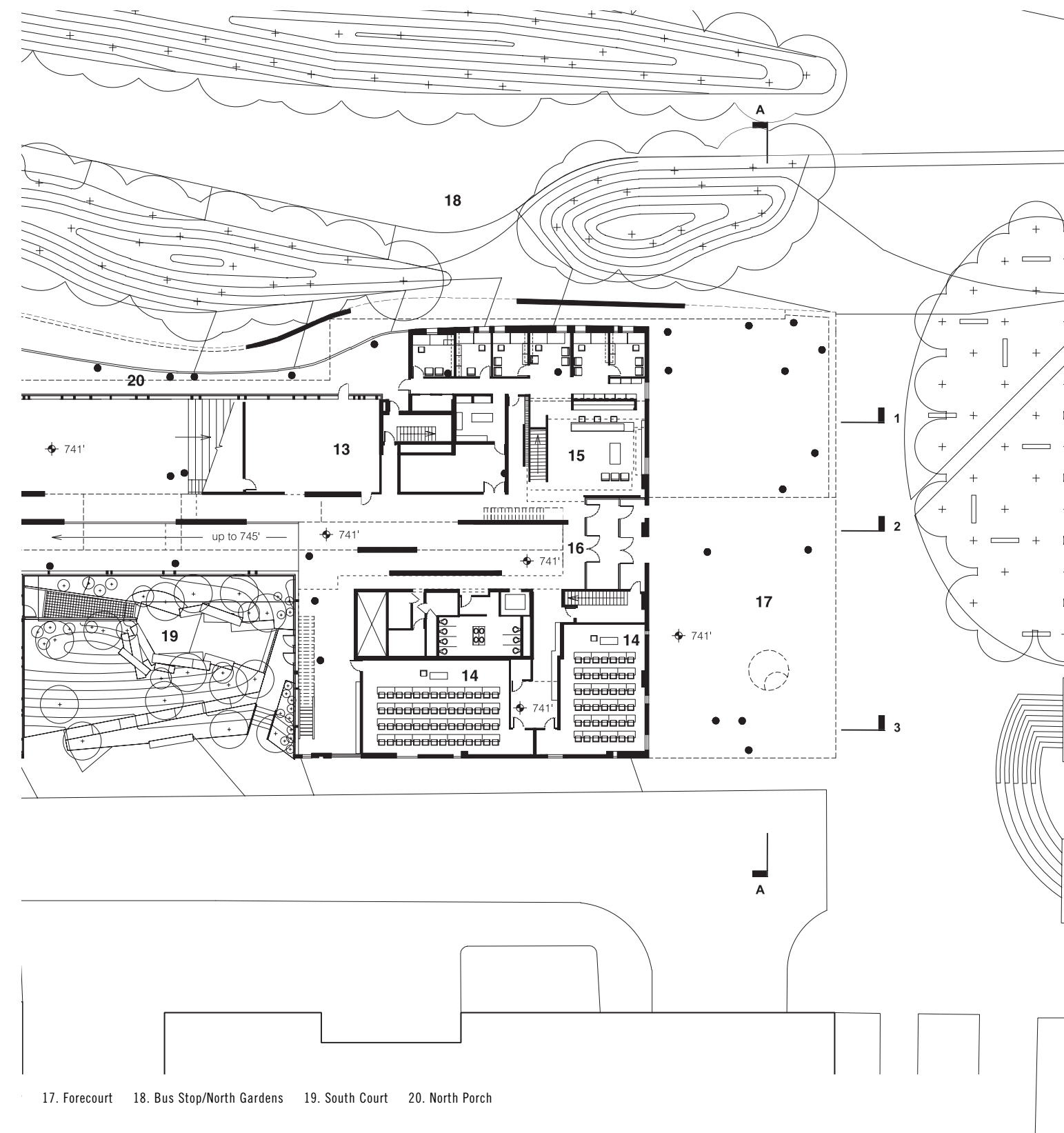


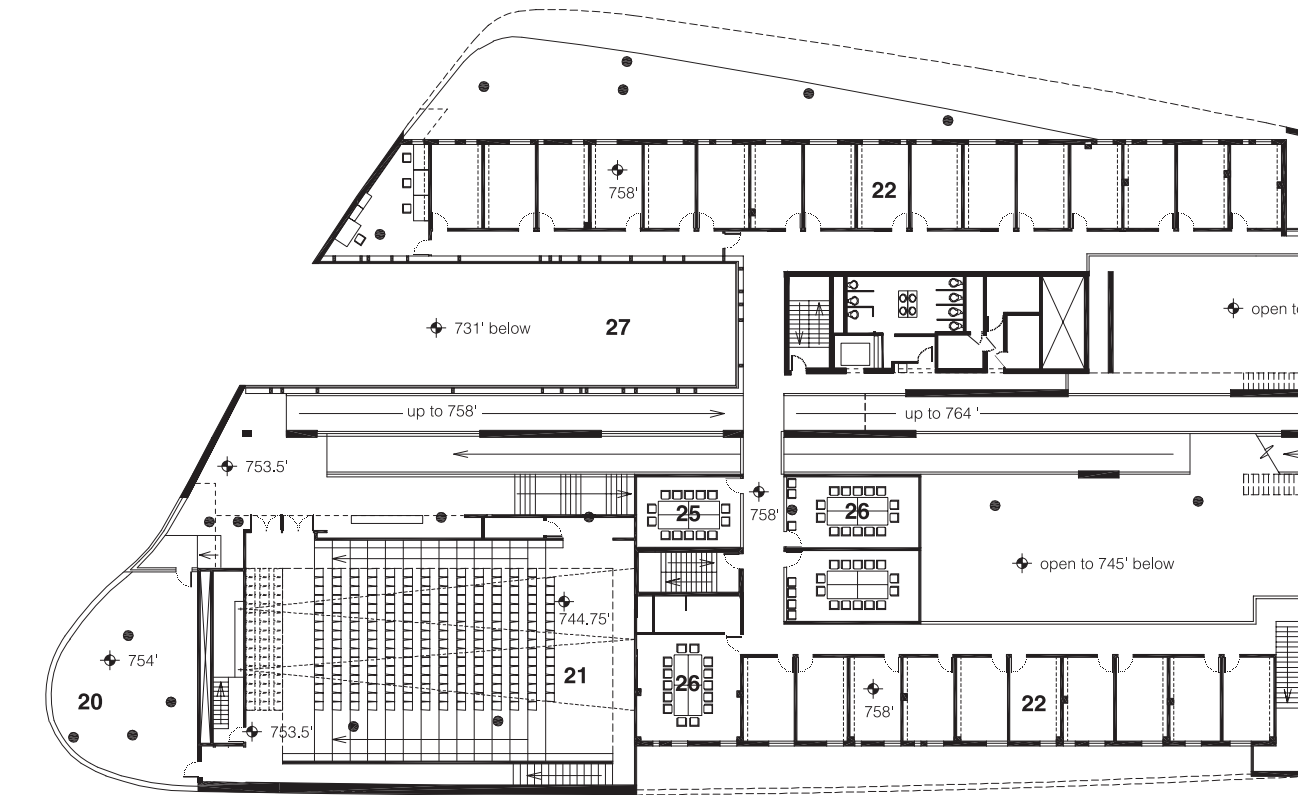
Lower Level (25,322 square feet) 01. Workcourt 02. Woodshop 03. North Courtyard 04. Mechanical 05. Unexcavated 06. Knowlton Columns 07. Archives

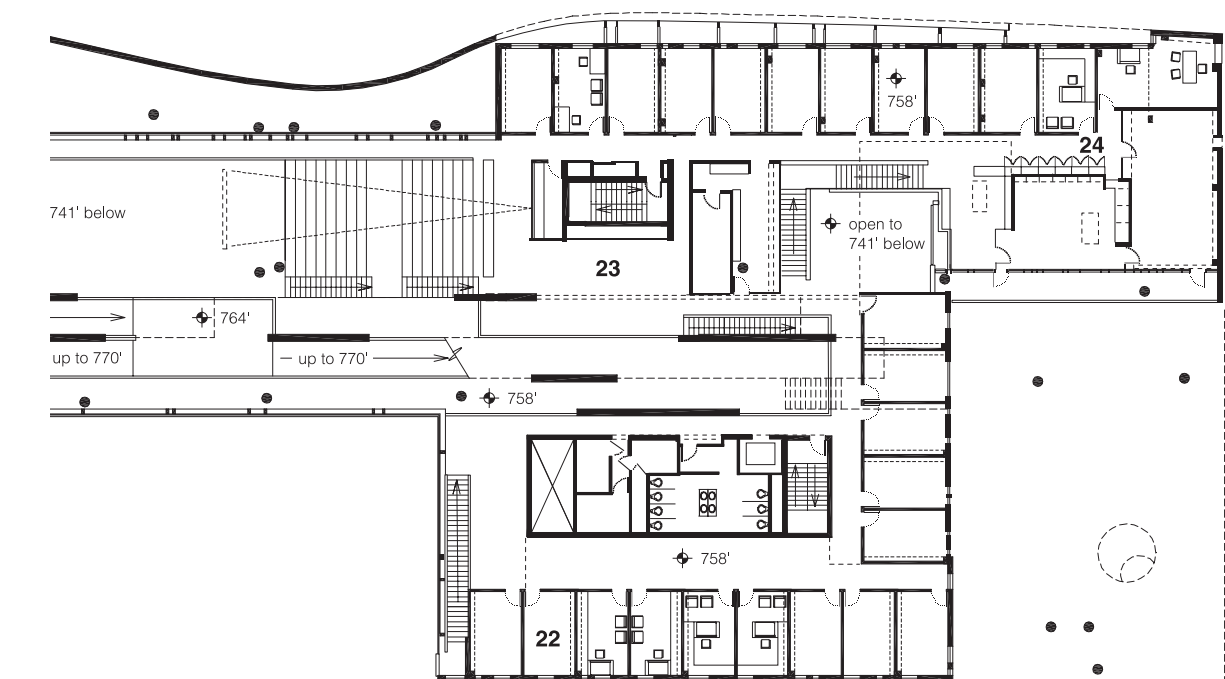


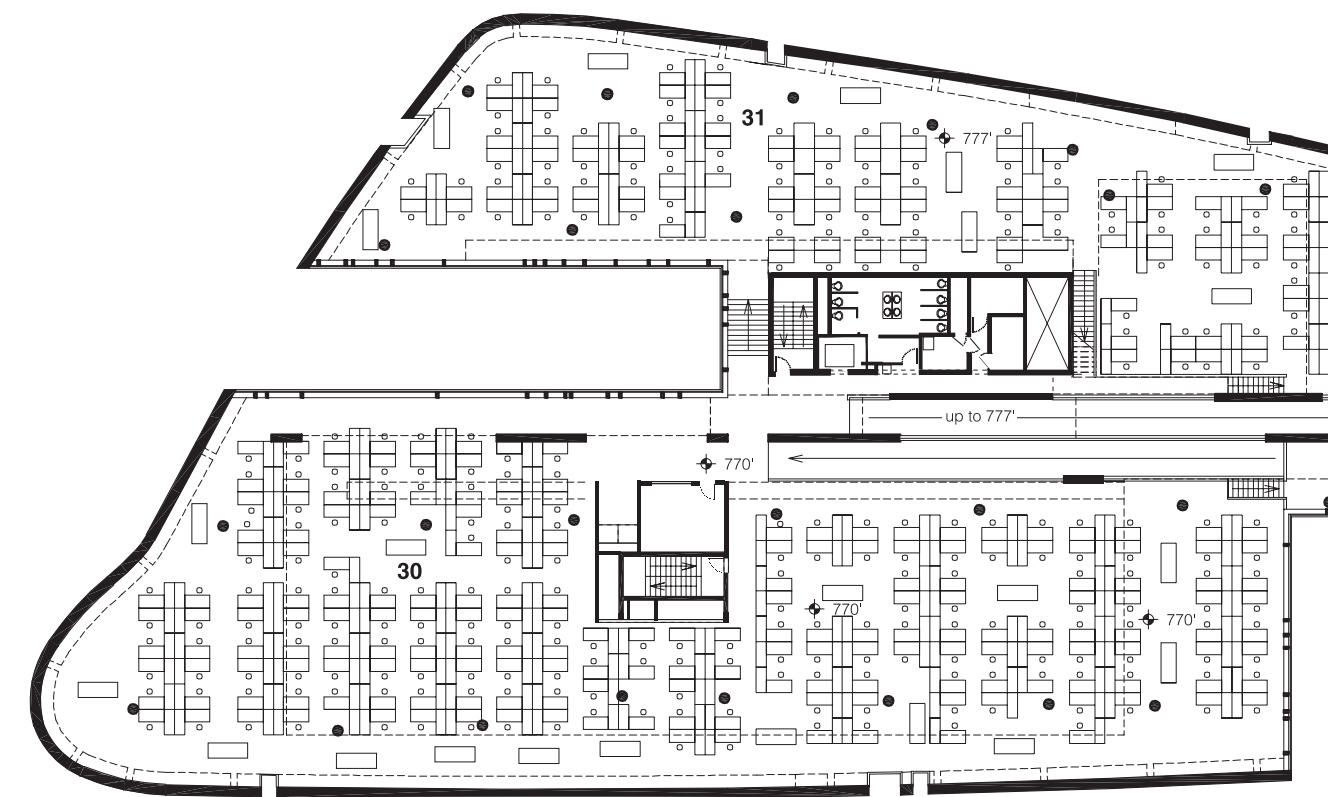


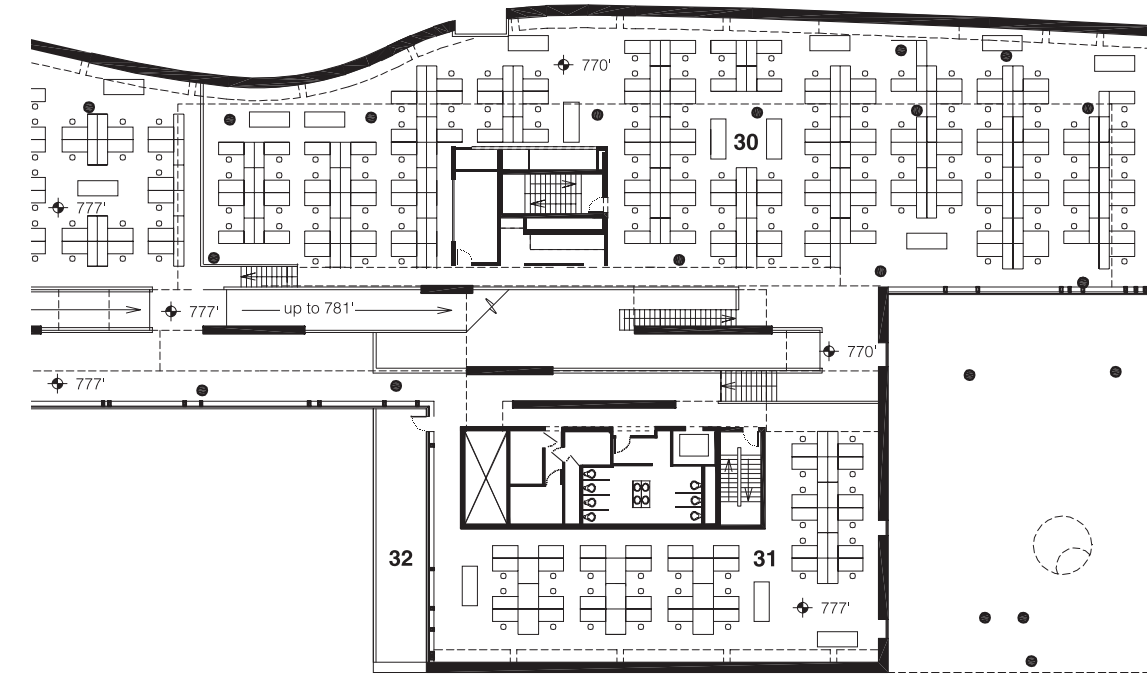
Level One, Ground (30,190 square feet) 10. Jury Space and Lecture Rooms 11. Cafe 12. Center Space 13. Gallery 14. Classroom 15. Administration 16. Front Entry

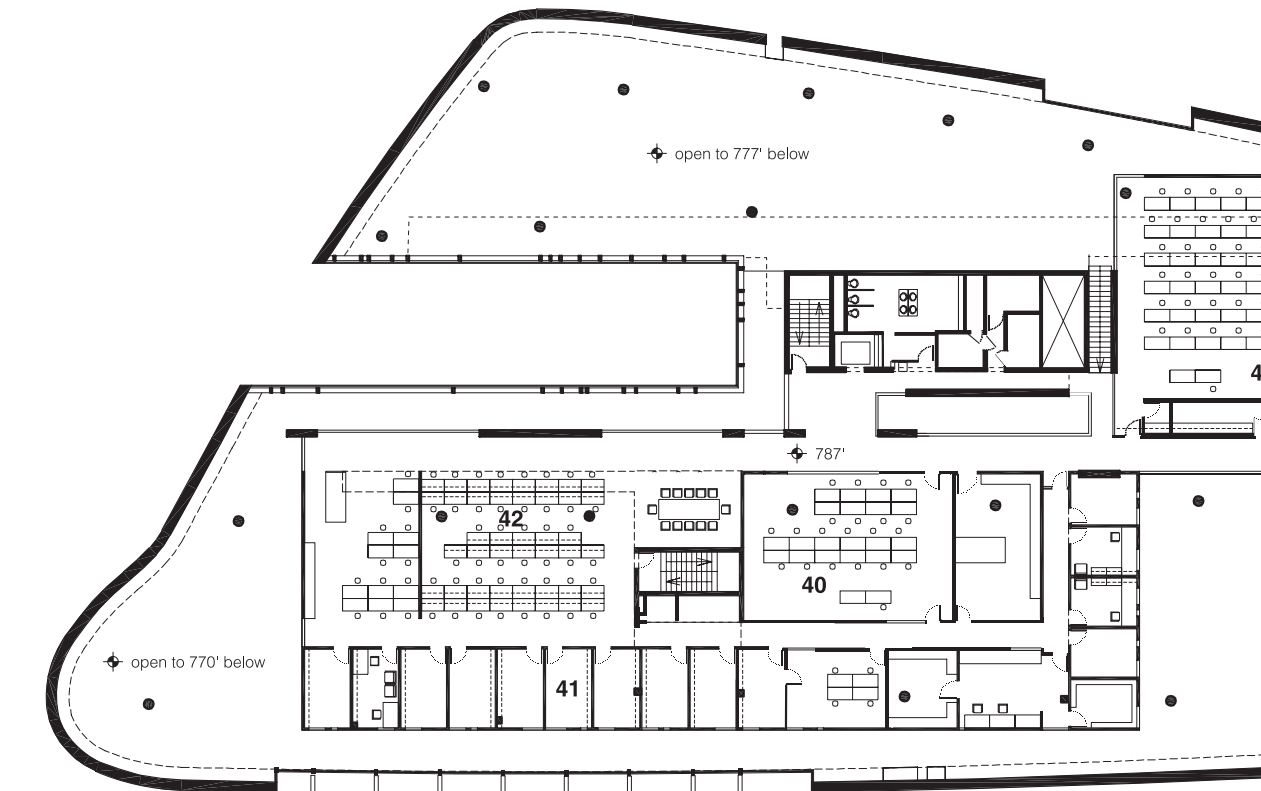


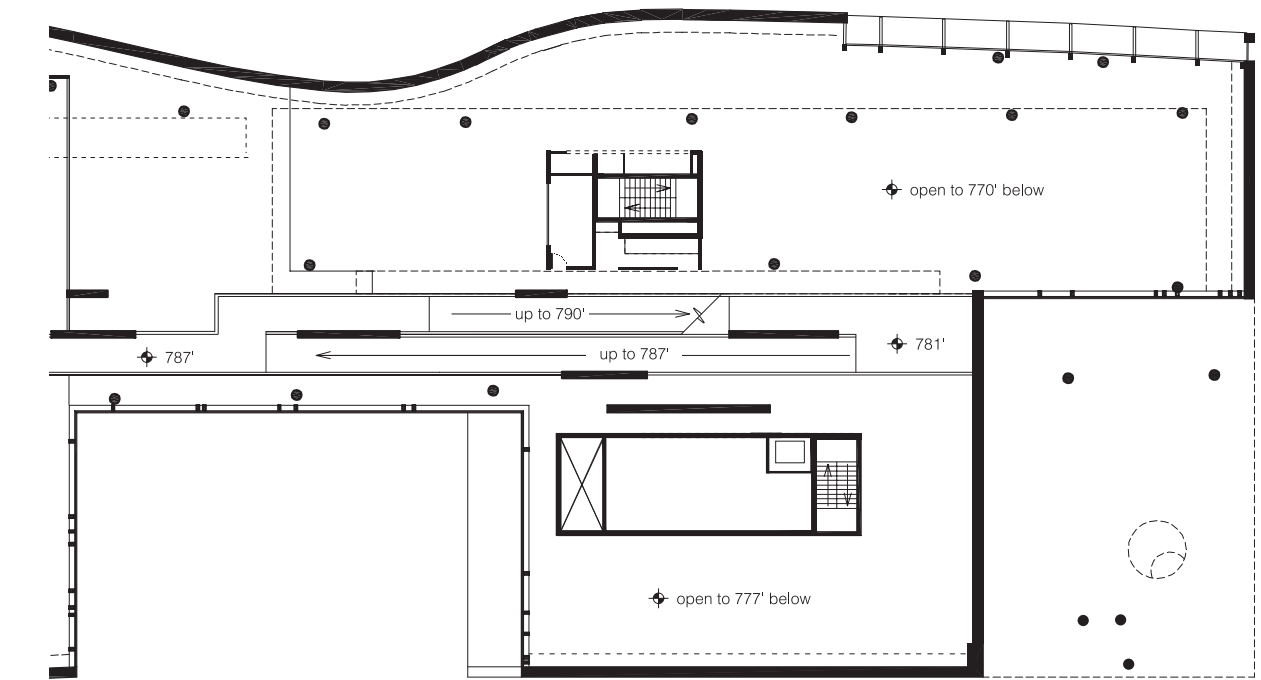


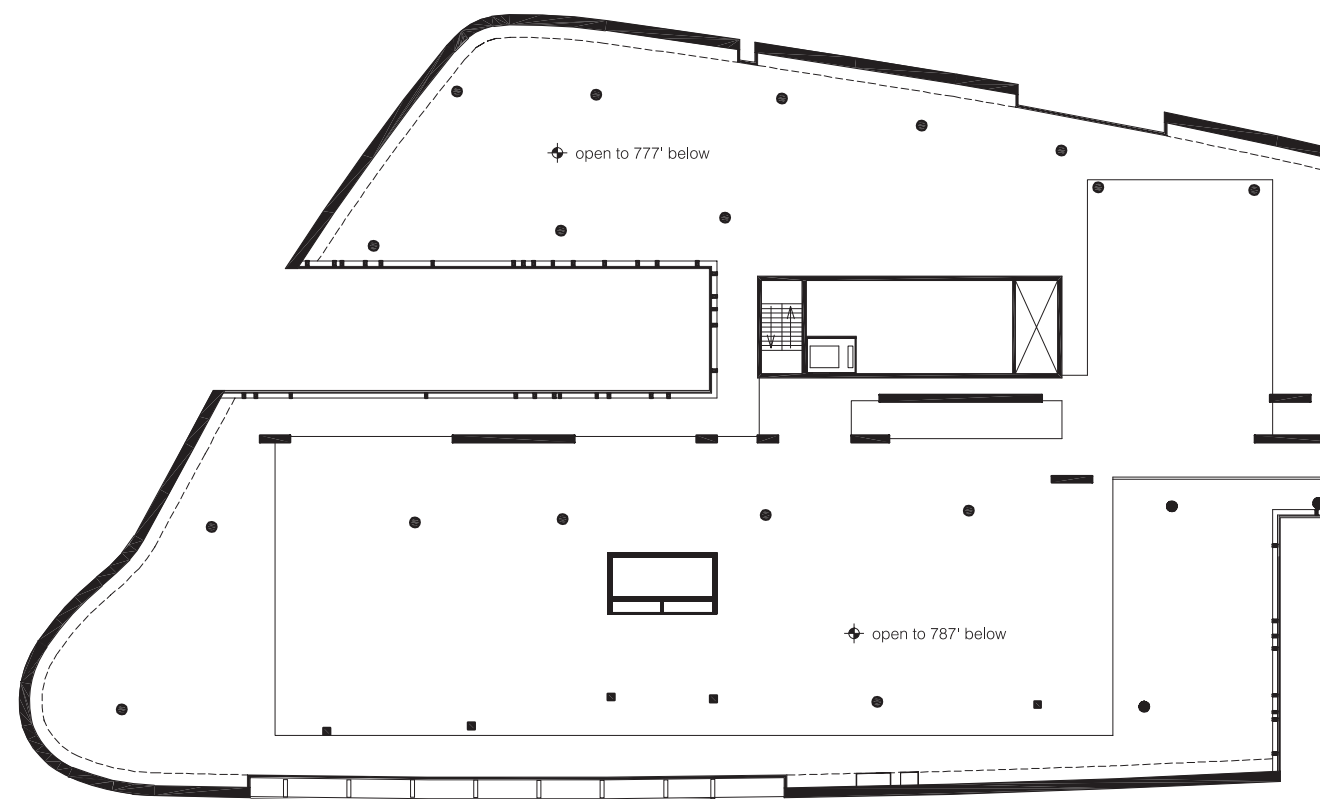


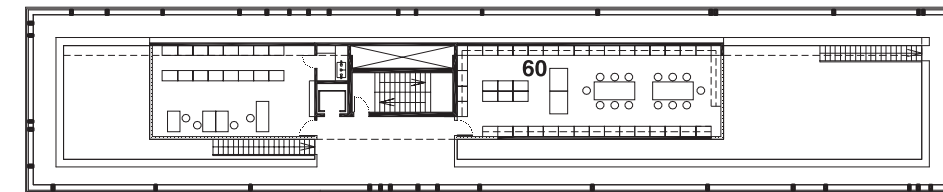
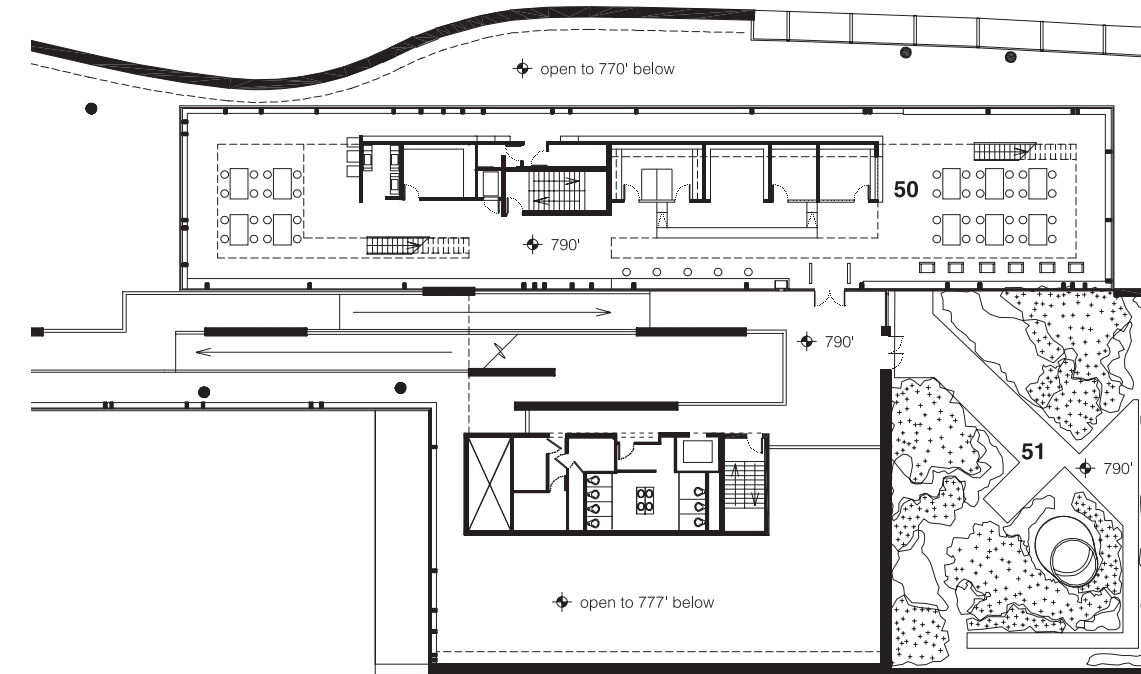


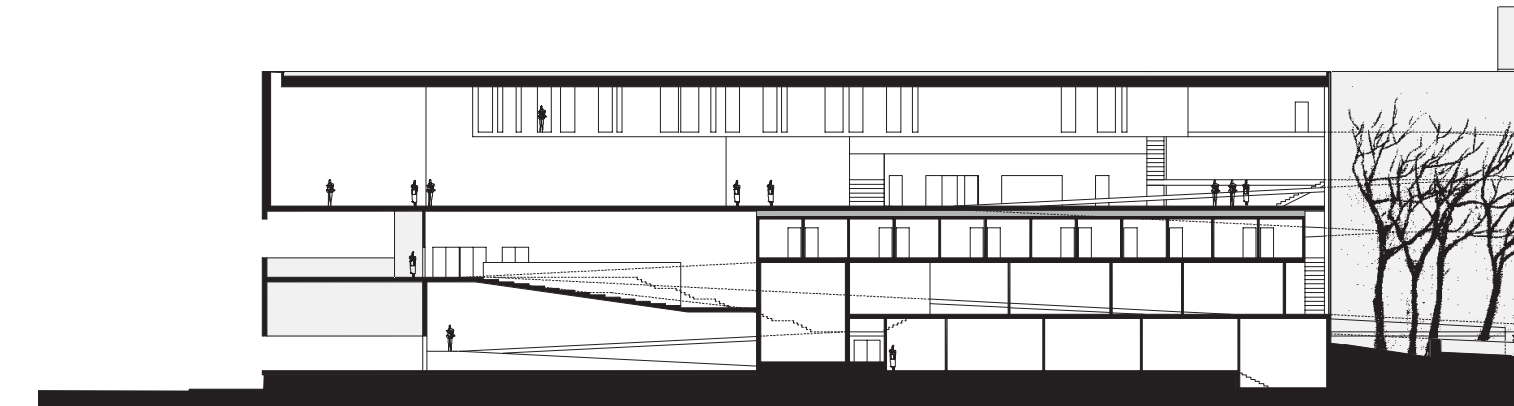




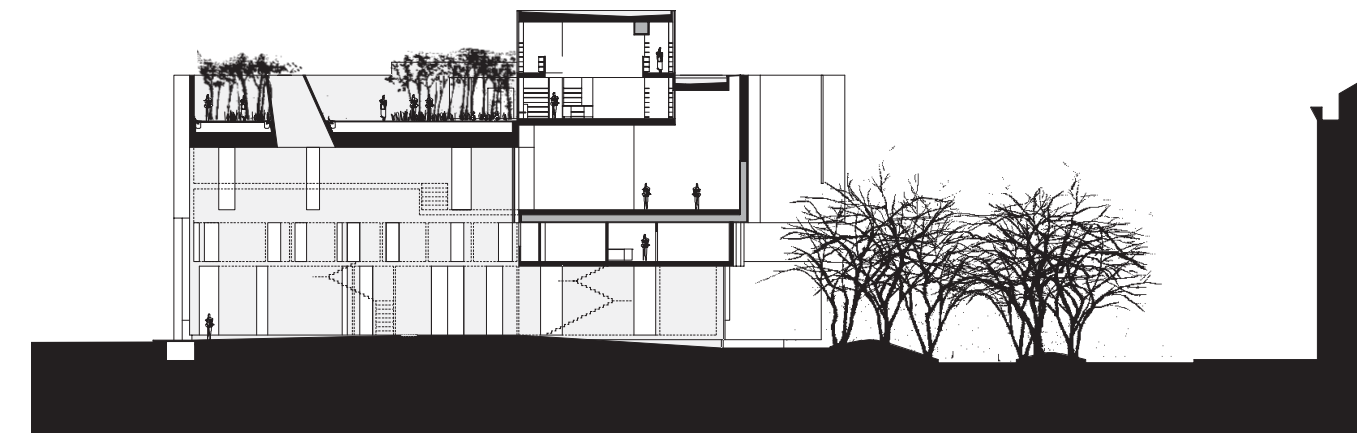




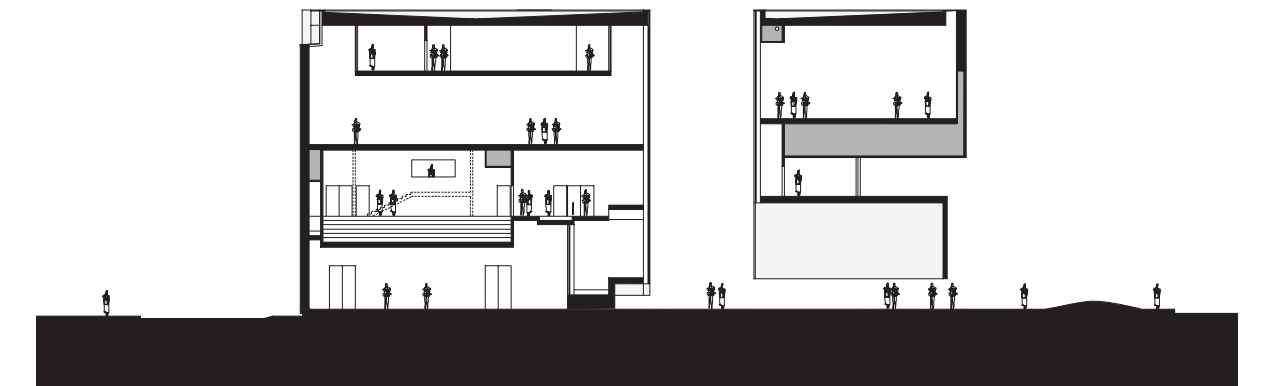
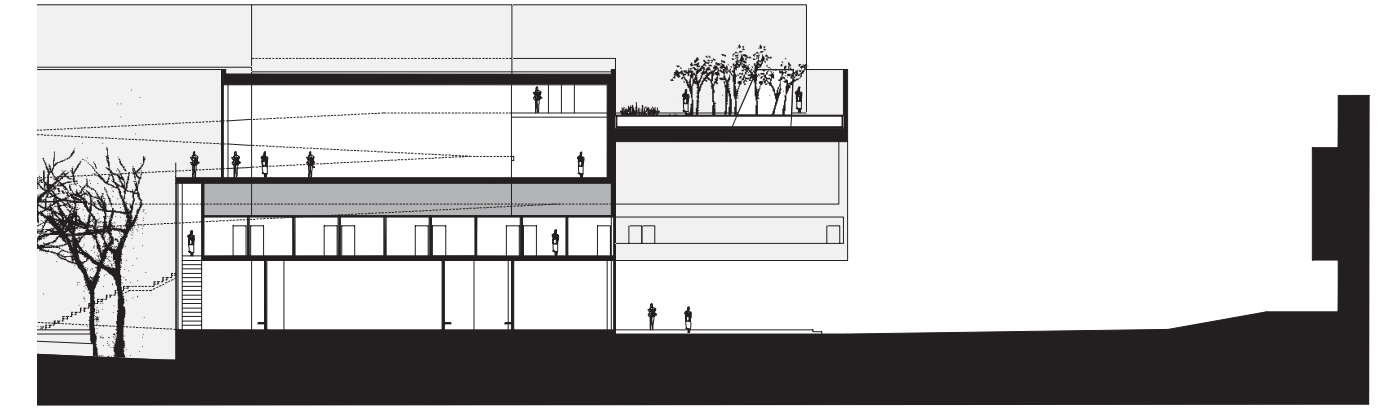




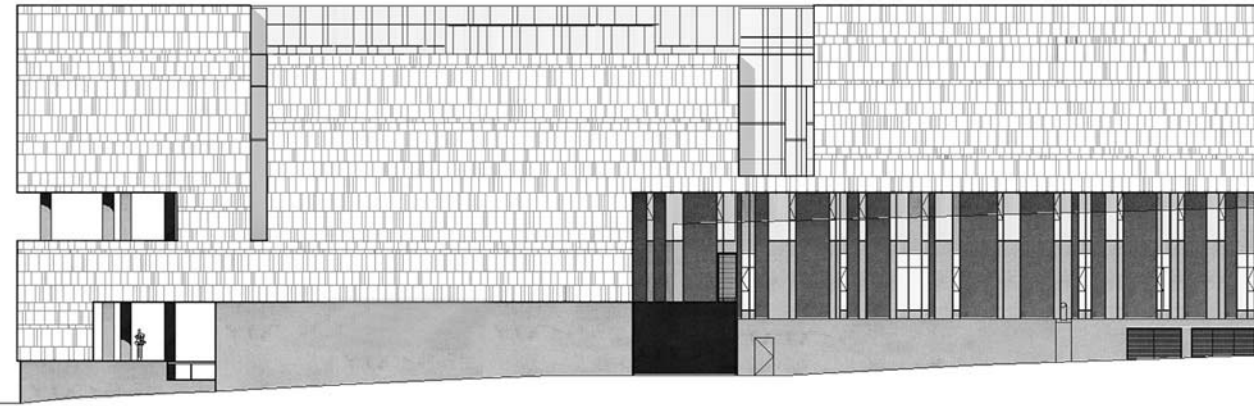
Section at auditorium, south garden, and faculty offices (Section Three)



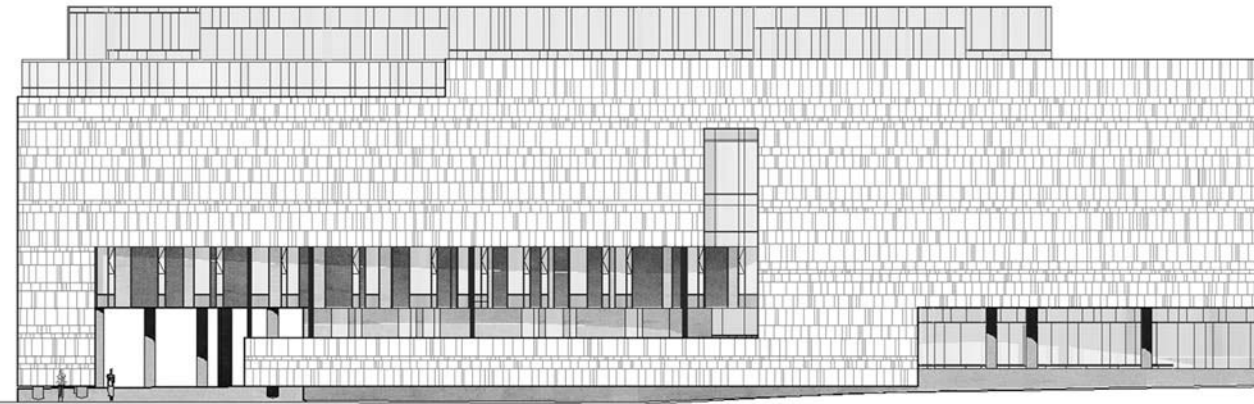
Section at forecourt (Section A)



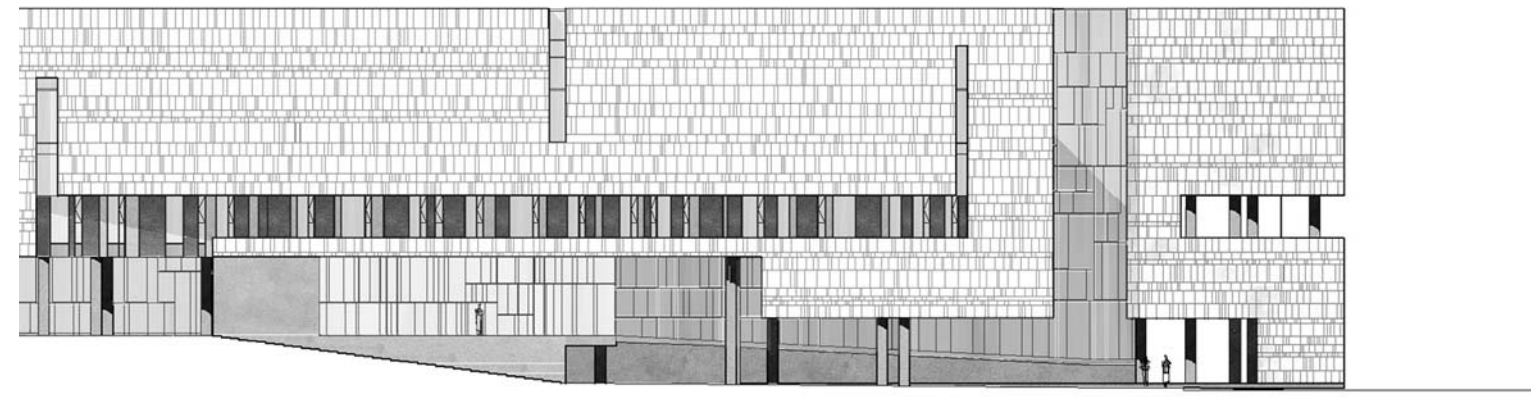
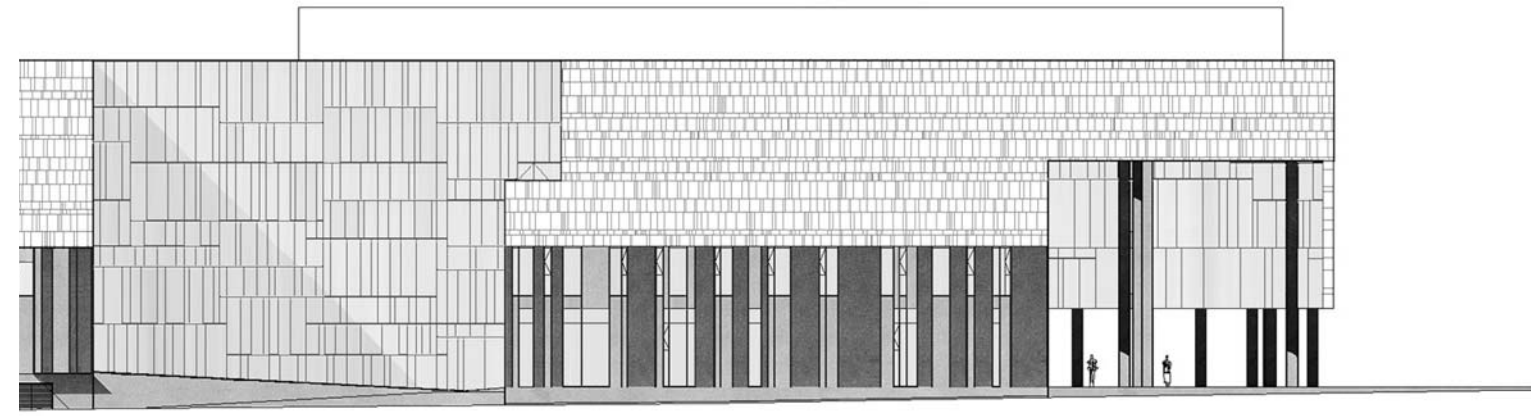
Section at auditorium (Section F)



South elevation



North elevation



THE LIBRARY

MS: I think it is absolutely fundamental to the school of architecture to have its library in the same building as the studios. The fact that we were able to accomplish that here owes entirely to the tenacity of Rob Livesey. I do not know how he did it—it was never in the budget—but somehow he got it in there.

BW: That is right. There was no money for the library, but everyone felt that it was such an important component that we kept it in the design as an alternate. If the bids came back too high, we would have built an inaccessible glass box at the top of the building. The book shelves, offices, and finishes would be installed after additional funds were raised. Luckily, the bids came in so that we could provide the library from the start.

MS: Locating the library at the top of the inclined plane system has a pretty obvious implication. The library is clad in a translucent glass skin that will glow both inside and out. The quality of light through the translucent glass will be different from the light anywhere else in the building.

EXECUTION





CONCRETE

7,000 cubic yards of mild steel-reinforced concrete
8,000 cubic yards of post-tensioned elevated concrete slabs
51 miles of post-tensioning cable
750 tons of reinforcing steel
25 feet: longest cantilevered slab (at roof garden)
40 feet: longest span between columns
16 inches: thickness of concrete walls
12 inches: thickness of post-tensioned concrete floor slabs
32 inches: thickness of roof garden slab
24 inches: thickness of library slab

MATERIALS

<i>concrete</i>	<i>lay-in-ceiling tile</i>
<i>cable</i>	<i>sprinkler pipes</i>
<i>glass</i>	<i>embeds</i>
<i>steel shapes</i>	<i>carpet</i>
<i>aluminum window wall</i>	<i>medium-density fiber board</i>
<i>aluminum skylight</i>	<i>sealer</i>
<i>gypsum wall board</i>	<i>marble</i>
<i>homosote panels</i>	<i>stainless-steel-clips</i>
<i>paint</i>	<i>insulation board</i>
<i>plate steel</i>	<i>steel studs</i>



Under construction, May 2003

ARCHITECTURAL OPERATIONS

cut

undercut

top cut

mid cut

incise

insert

slice

hang

wrap

punch

pour

cast

reinforce

open up

tension

resist

deny

liberate

extend

suspend

cantilever

support

weld

tape

brace

compress

glue

screw

shoot

lay-in

paint out

punch through

frame

attach

fasten

seal

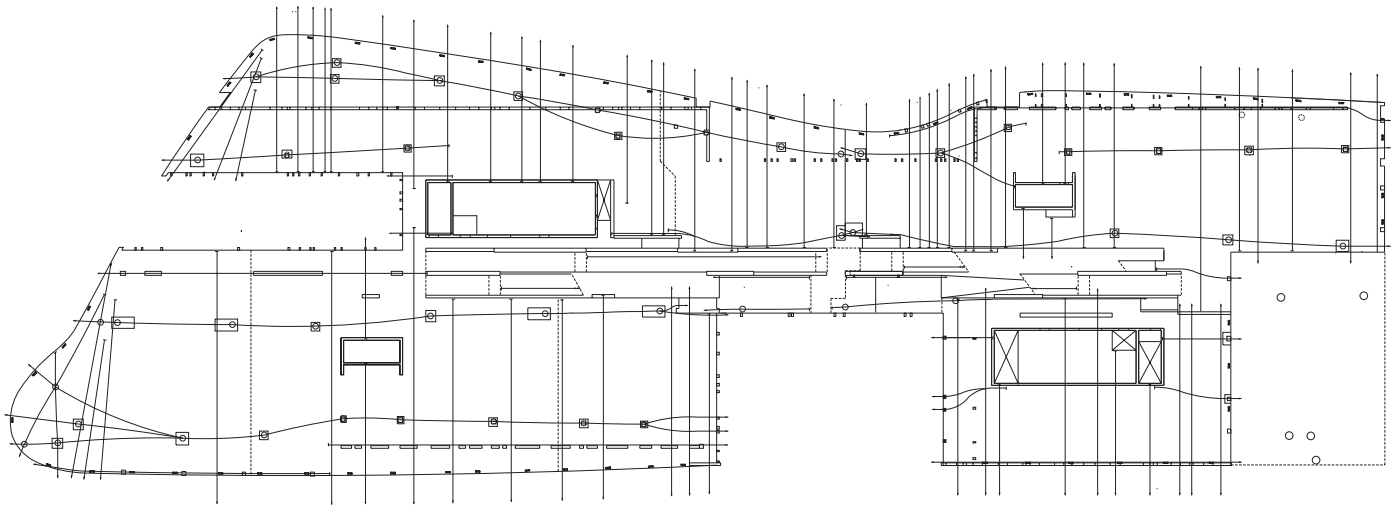
wax



LEFT, CENTER, and RIGHT: Post-tensioned slabs under construction

RL: Why did you choose post-tensioned concrete as a structural system? Steel would have been more economical.

MS: There was no way to do this in steel, to stay true to the idea of the departure from the grid, and achieve long spans with a shallow structure. The only economically feasible structural system was post-tensioned concrete. I think it was a matter of putting the money into the fundamentals of the building.



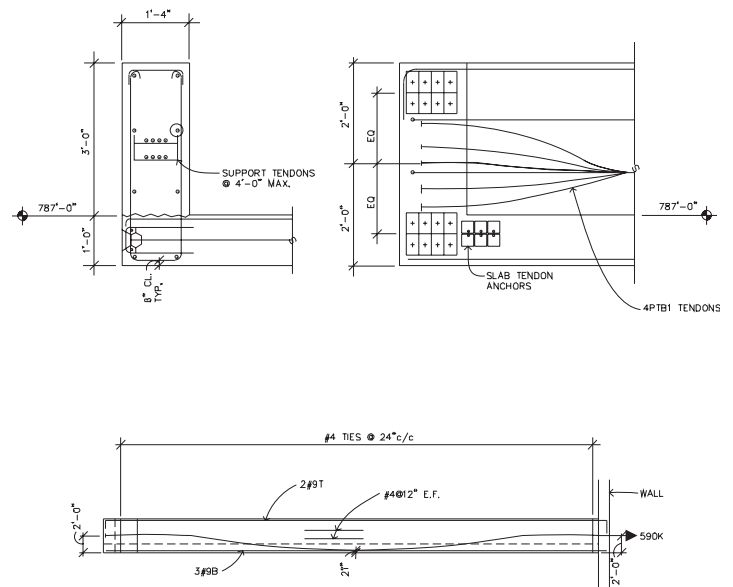
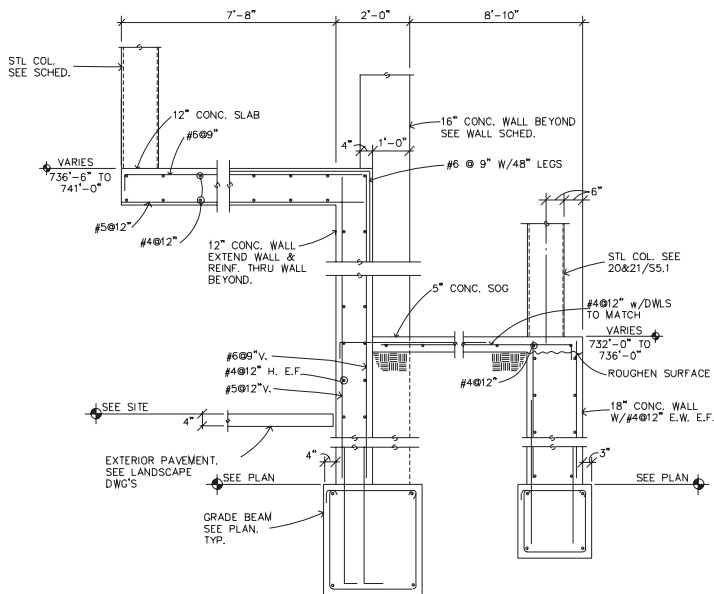
TOP: Post-tensioning plan at Level Three

BOTTOM LEFT: Section detail of cantilevered ramp slab

BOTTOM RIGHT: Details of post-tensioned beams at Level Four

Pages 104–05:

During Construction









GUARD AND HANDRAILS

Code driven and cost intensive are the two phrases that most define those boundary devices that prevent people from falling off the edge, from one level to another, or help steady them along a path of vertical transition. Two types of rails were employed: 3/8" glass at horizontal planes and 10-gauge steel plate at inclined planes. The steel guardrails give graphic presence to the inclined plane system, contrasting with the transparency of the glass guardrails located at the edges of horizontal floor planes. Metalwork for both types was designed with ease of fabrication and installation in mind. Fabrication was executed locally. Mocked up in the fabricator's shop, a pre-installation review led to the deletion of a light detail tucked into the curved upper edge. It was simply too clumsy and difficult. Metal at both rail types is mill-finish steel, oil rubbed. There was no requirement for the removal of mars and marks. Both systems are mechanically fastened to steel plate embeds at slab edges.

154'-0": longest section of glass handrail

1'-6": shortest section of glass handrail

1,259'-0": entire length of glass handrail

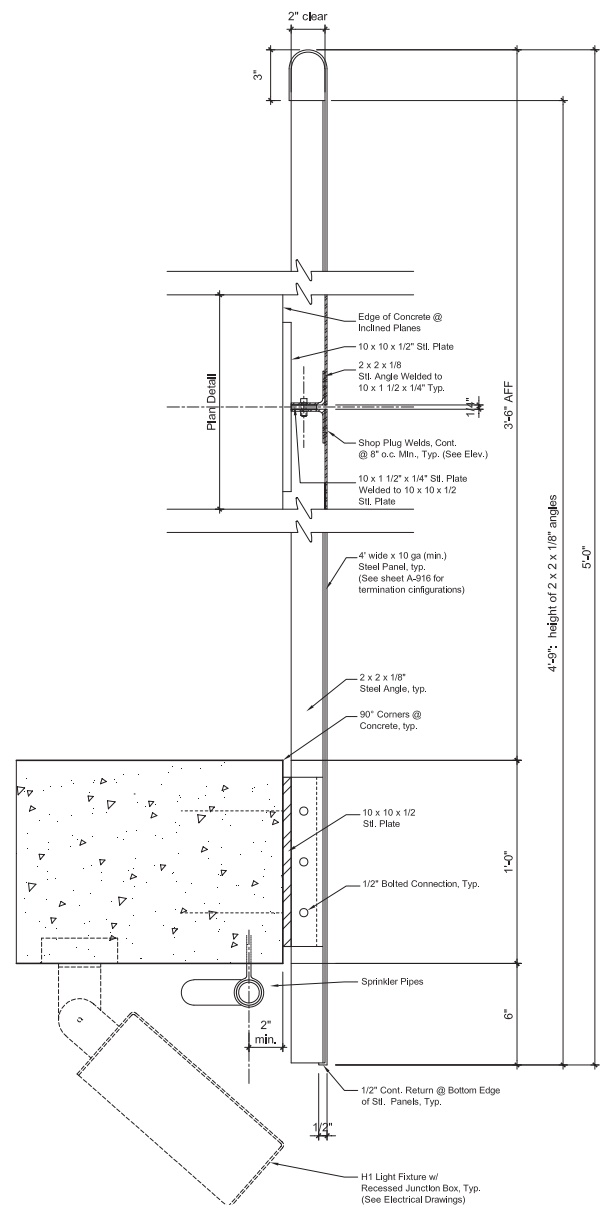
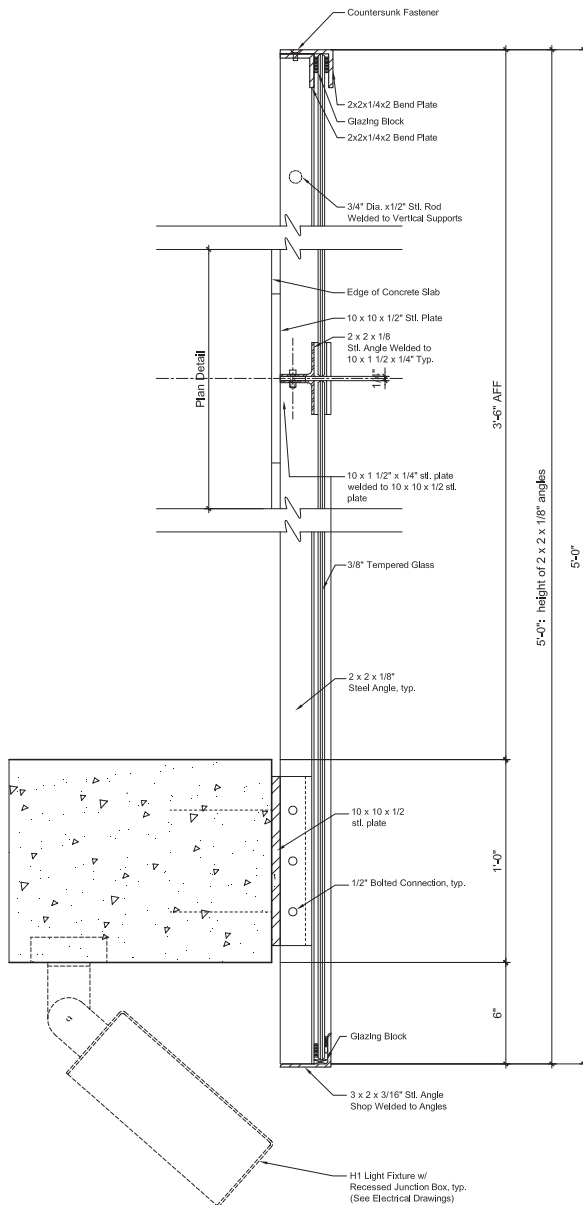
77'-0": longest section of steel handrail

5'-6": shortest section of steel handrail

1,707'-0": entire length of steel handrail

1,260 countersunk screws

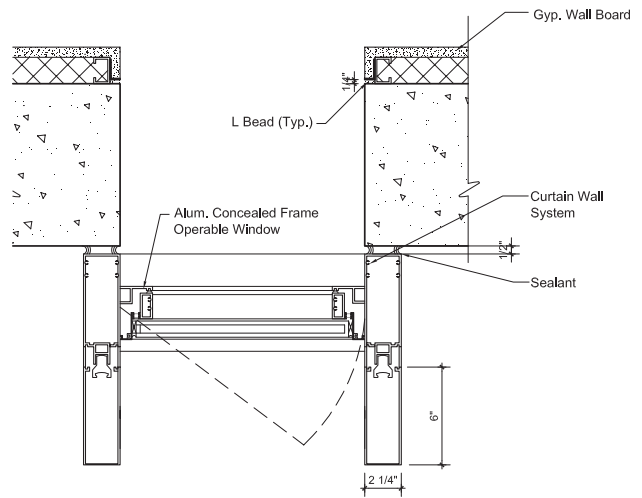
8,540 welds



LEFT: Detail of glass handrail
RIGHT: Detail of steel handrail

opposite:

LEFT: Glass handrail
RIGHT: Steel handrail



LEFT: Punched openings at north elevation
RIGHT: Detail of punched opening

opposite:
TOP LEFT and RIGHT, CENTER LEFT and RIGHT: Installation of south court storefront system
BOTTOM LEFT and RIGHT: Details of storefront system

GLAZING SYSTEMS

Glazed vertical slices—some top-down, others bottom-up—characterize the marble wall. Each slice announces the location of an inwardly protruding window, a reverse bay of sorts. Seemingly random on the exterior, they occur in the plan of the studios at critical moments where visual access to the exterior would be denied by the continuation of the solid wall. In conjunction with glazing at the south court and west cut, every student has a view or views out from their studio area.

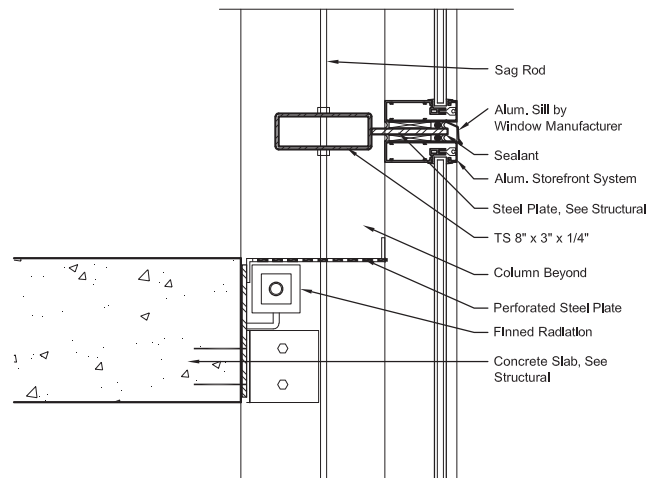
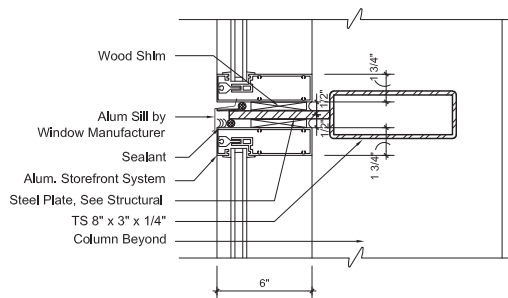
Glazing at the west cut and south court is a storefront system supported from the interior by a gridded framework of tube steel. Left to rust during construction, the grid is a rich reddish color. At the storefront, “beauty caps,” or the finishing closure pieces, were deleted at the vertical mullions. A pattern of major horizontal and minor vertical elements results.

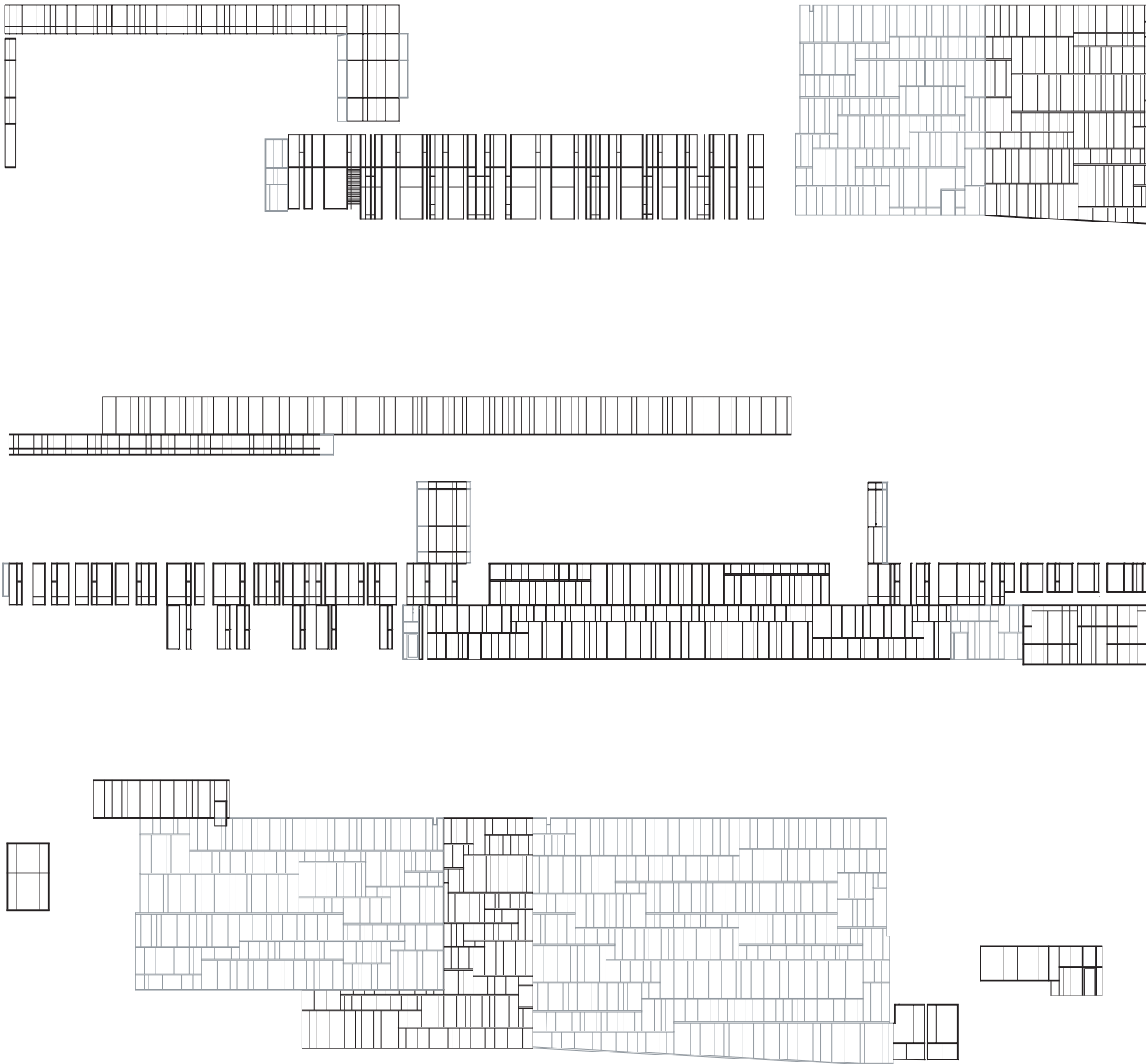
At openings “punched” into concrete walls at offices and classrooms, a storefront system is deployed again, but in this case with operable windows, mullion extensions, and glazed areas codified by gray glass that overlaps the concrete. At the polished marble of the forecourt and the entry sequence, the storefront system is employed in a standard configuration.

A continuous perimeter skylight at the studio wall helps balance the light from the cuts and reverse bays, emphasizes the wall, and sets up an exterior-to-interior volumetric transparency. The skylight appears to turn down the exterior surface at the southeast corner—a reverse skylight.

6,801 square feet of punched openings
47,346.26 square feet of storefront
1,546.94 square feet of skylight

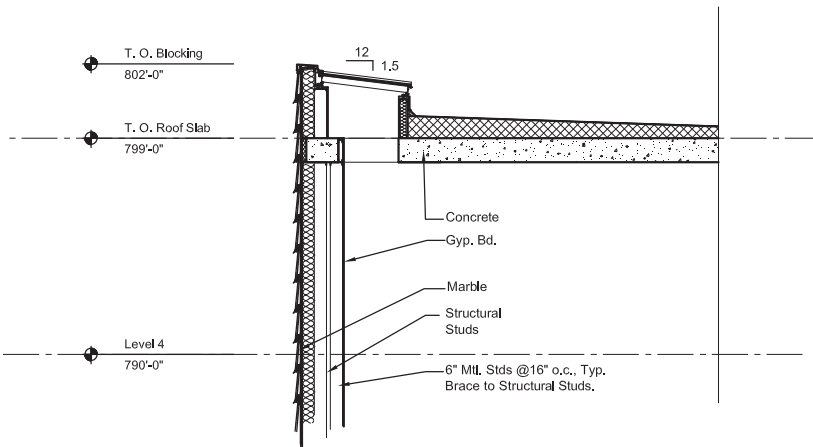
2,340 square feet of reverse skylight
2,006 square feet of reverse bay







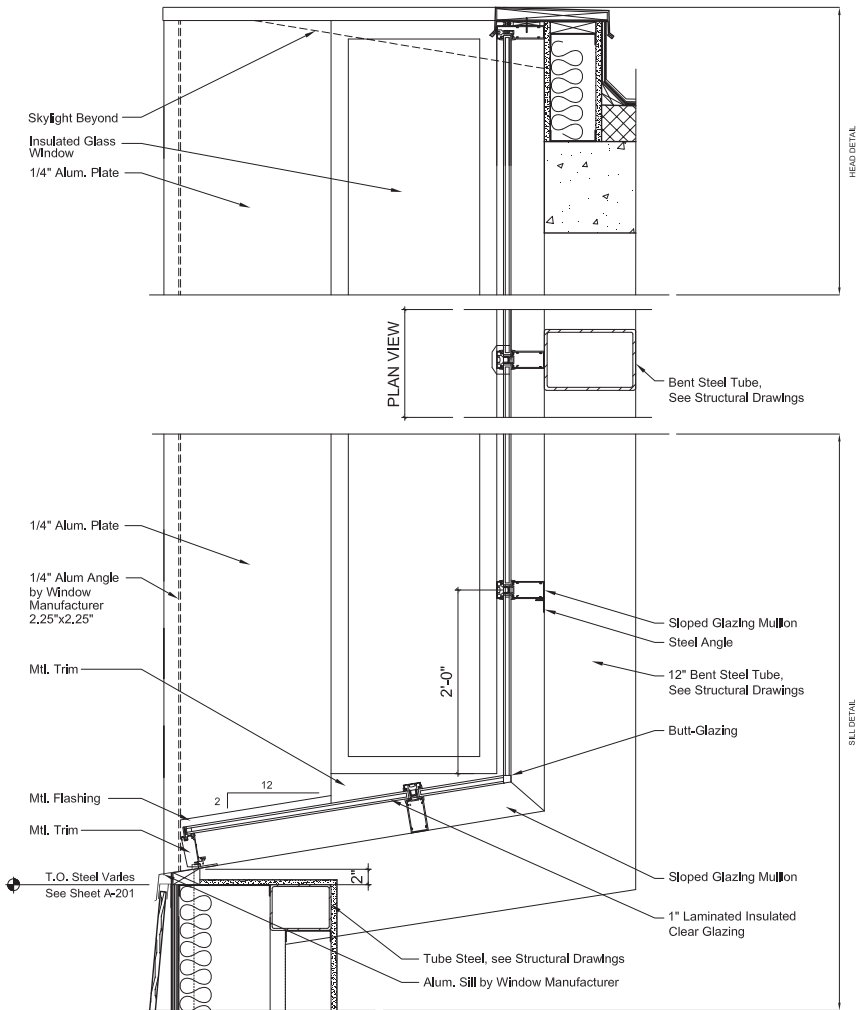
TOP: Window pattern distribution diagram, south elevation
 CENTER LEFT: Window pattern distribution diagram, north elevation
 CENTER RIGHT: Window pattern distribution diagram, east elevation
 BOTTOM: Window pattern distribution diagram, west elevation

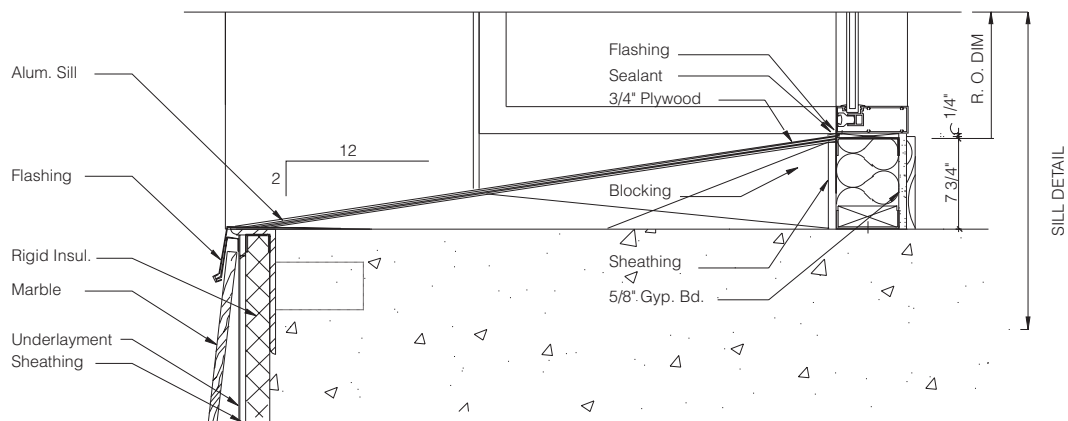
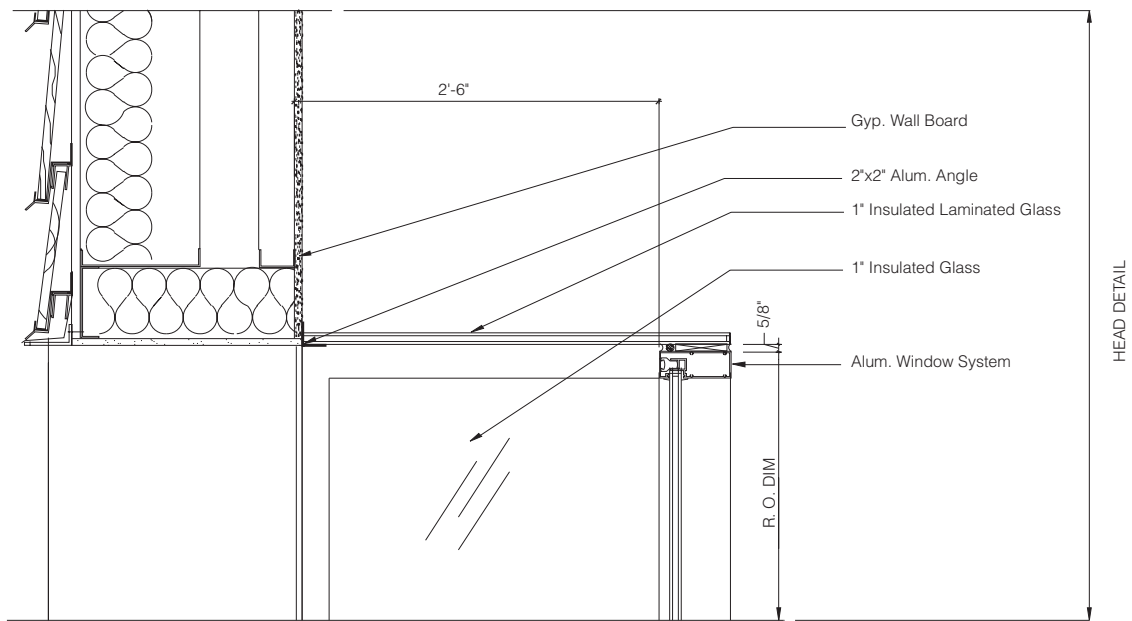


TOP LEFT: Perimeter skylight at studio, north facade
TOP RIGHT: Perimeter skylight at studio, southwest corner
BOTTOM: Detail of perimeter skylight

opposite:

TOP LEFT: Reverse perimeter skylight at northeast end of north elevation
TOP RIGHT: Reverse perimeter skylight at studio, south elevation
BOTTOM: Detail of reverse perimeter skylight



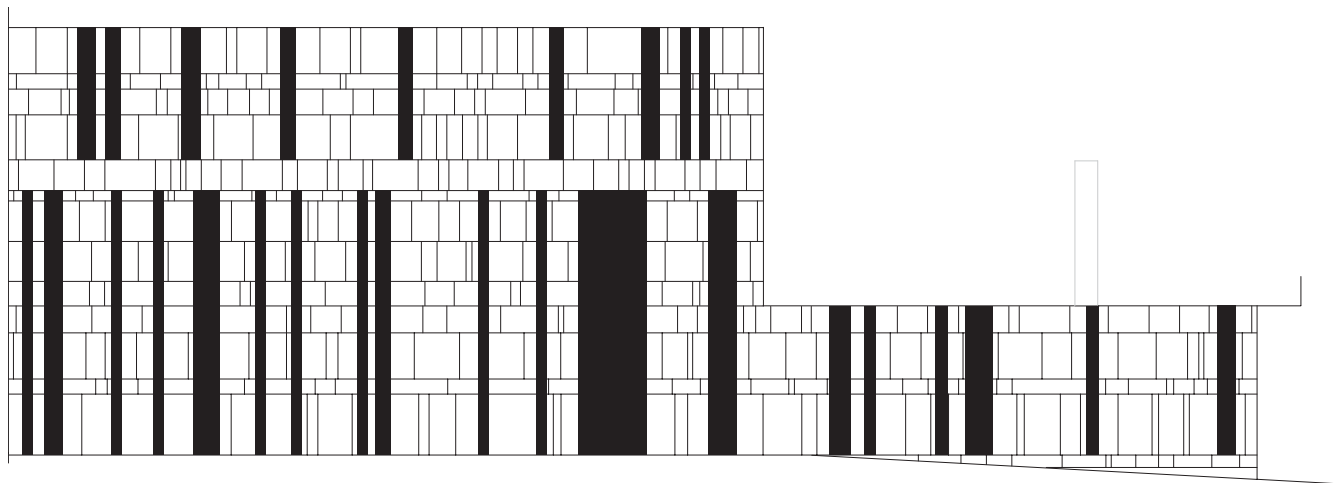


Detail of reverse bay window

opposite:

Reverse bay window at studio level





Flat panel marble diagram, east elevation

opposite:

Wall section of flat panel marble, east elevation

MS: As I said, marble is a problematic material, and the more Merrill, Bob, David, and I studied old and new marble buildings, the more nervous we became about using it.

The joints, whether they were mortar or caulk, were the biggest problem. Joints would fail, water would get into the walls, the marble would crack. In addition, the material is very expensive to maintain. The university would have to re-point the walls every ten years. Actually, it was Rob who said we have to detail the marble in a way that does not use any caulk or grout. We needed to find a way to install the marble in a manner that did not depend on it as a weather seal.

So we started looking at a shingle application. We first attempted a shingle strategy at the Ida Williams Branch Library in the Buckhead area of Atlanta. There, we employed slate shingles—simple roofing technology applied to a wall. It turned out to be quite affordable, trouble free, and durable. But marble has very different properties. It is too

brittle to drill into, so we had to develop another way to hold it up.

We started out with big pieces and ended up with smaller and smaller pieces. In the end that has worked to our advantage. The clips we use to hold up the marble in place add a certain texture or grain to the building exterior. The shingles glide over the curving surfaces like a reptile skin.

The cross section is very tricky, and was developed in collaboration with Bob Wandel and a forensic engineer. With unsealed joints there is nothing to stop the weather from blowing right through the marble joints.

Through various mock ups, we came up with a way to make this work. There was concern about what would be behind the marble. We eventually settled on a commercial grade nondirectional high-density-polyethylene building wrap. But these building wraps degrade in ultraviolet light, so it was crucial to seal the wall against sunlight. Marble, of course, is translucent, so we had to

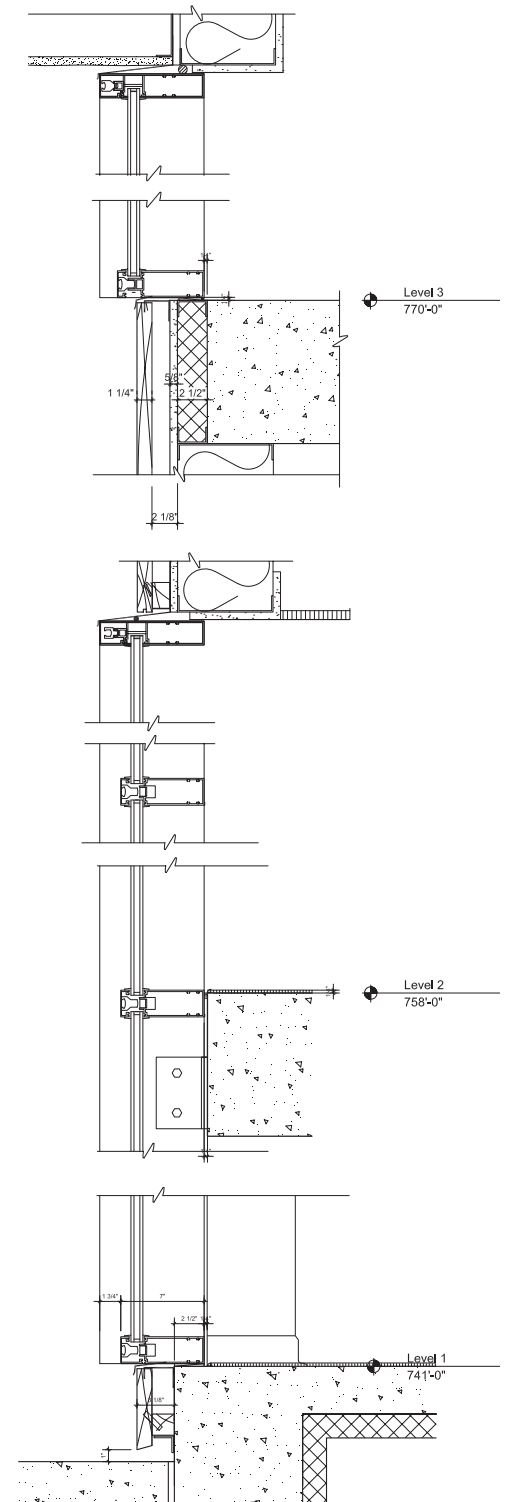
work through a series of experiments to determine the optimal thickness of the material. It had to be thick enough to stop the UV rays, but thin enough to meet our budget.

TG: Is the bevel edge all that keeps UV rays off the building wrap?

MS: That was part of it, but some light would get through the bevel. Bob developed a detail in which each seam is backed up by a metal strap to shield the sheathing from UV rays. This element simultaneously acts as flashing, providing additional protection from weather infiltration.

The beveled edge allows each shingle to lap the next and helps the shingles to negotiate the curved surfaces of the facade.

You'll notice that the metal support clips are not as straightforward as they could be—they could have been a simple U-shape, but we decided to add this additional leg. We experimented with various





ABOVE LEFT: Marble shingles

ABOVE RIGHT: Flat panel marble

CENTER: Plan of marble shingle application

BOTTOM: Section of marble shingle application

opposite:

Marble shingle distribution diagram

46,912 marble shingles

46,960 clips

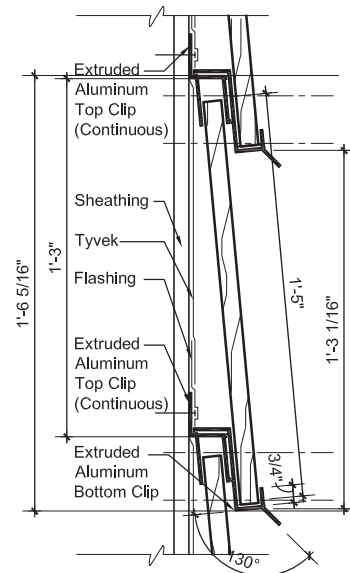
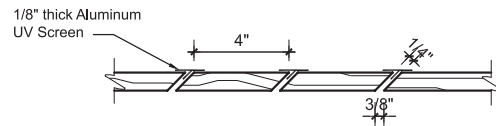
shingle sizes:

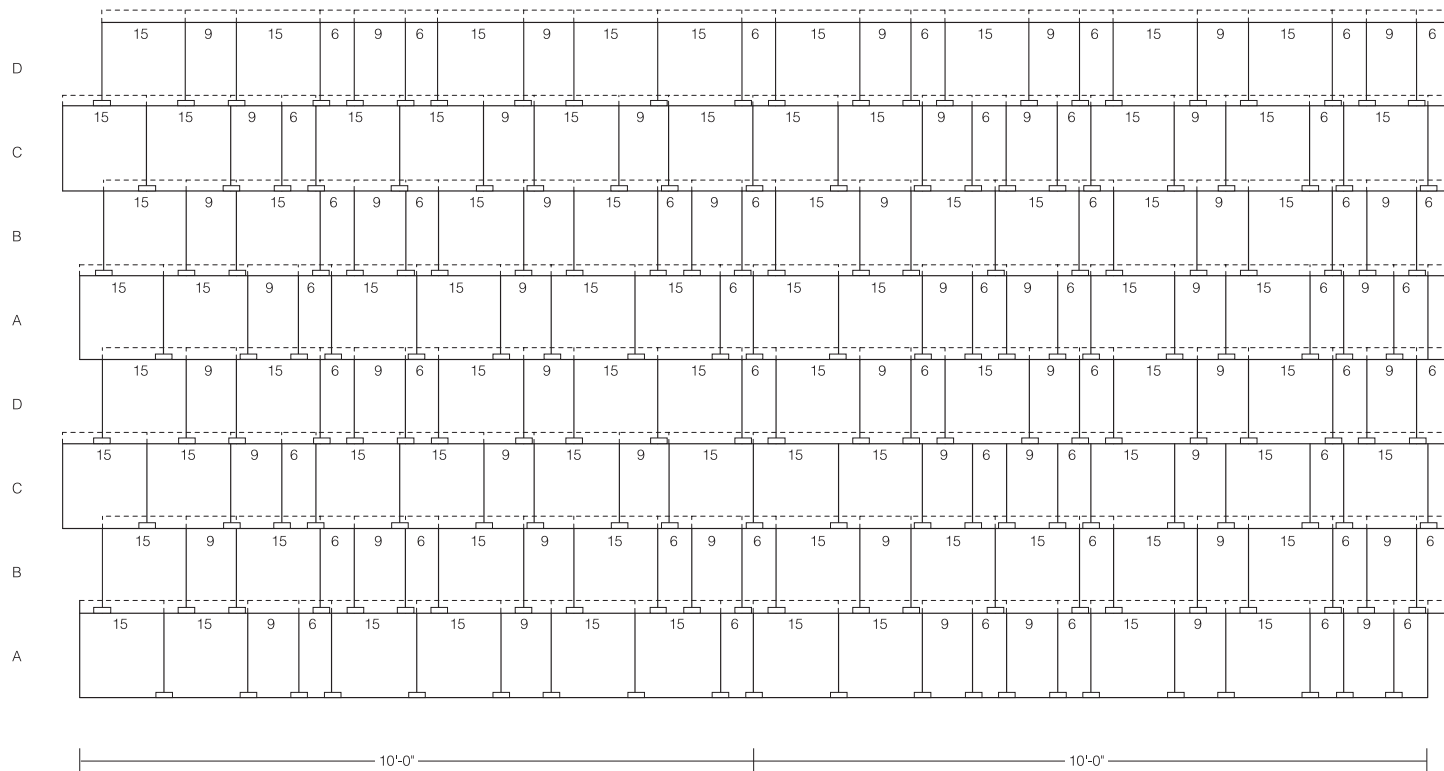
17" x 6"

17" x 9"

17" x 15"

3,385 square feet of flat marble panel





configurations, finally settling upon the canted angle seen in the finished building.

These legs will cast a variety of shadow patterns across the building, altering the perception of the marble skin from different vantage points. The entire system, actually, is about playing with one's expectations about materials and tectonics. This is not the way one would typically detail a marble skin. We hope it will raise questions in the mind of the observer, getting them to look more carefully. Through a combination of familiar materials and details combined in an unexpected way, I think this has been achieved.

We know that this facade will change dramatically over time. It is going to streak; it is going to weather. In a few years streaky patterns will begin to appear across the surface. We think this will add to the textures, and the fact that it is a natural material will also re-register more strongly.

STUDENT: How does the wall system adjust to seasonal temperature variations?

MS: How a building adjusts over a freeze/thaw cycle is an important consideration. The open-joint configuration allows for ample movement of the shingles. We worked throughout the development of the skin with a forensic engineer who performed detailed calculations and some physical tests.

BW: Forensic engineers are trained primarily to tell you that it cannot be done. [laughter]

COMPLETED CONSTRUCTION















The exterior wall describes the extent of the site and the influence of certain forces around the site but refuses to disclose, with any degree of clarity, much about the interior. It is not a complete denial, however. Moments of declaration reveal the number of floor levels and certain program elements: studios, cafe, and circulation space. The building from the exterior is impressive simply because of its size. From the exterior, its massiveness is obvious—a crisp line drawn in the atmosphere. The interior, on the other hand, is denied this bigness in its unexpected intimacy. The interior is light and transparent, deflecting bigness and producing moments of immateriality.









Where the undulating wall and the orthogonal walls overlap or interface at the perimeter of the building, curious interstitial spaces emerge. Visible from the interior of the building, these curious spaces expand the interior space. As features of the exterior, they are somewhat enigmatic. The walls of these spaces are in effect suspended garden walls that have no duty other than to modulate and define the territory and the views. They are at liberty to be partial and playful.





If the Knowlton School of Architecture building encourages students to question the nature of the wall, the dynamics of space, the allure of transparency, the power of reflection, the necessity of exploration, the limitation of systems, the nature of liquid materials, the secrets of structural improbabilities, the relationship to the building of a simple farm house on a flat plane, of the necessity, difficulty, and complexity of contemporary architecture, then the building will have succeeded.













space of vertical community

space of the inclined plane

compressive space

expansive space

tight space

monumental space

spaces of denial

liberating space

confining space

intermediate space

interstitial space

open spaces

closed spaces

private space

public space

space of the wall

space of the discourse

space of deliberation

space of debate

personal space

impersonal space

gracious space

inhospitable space

residual space

appropriated space

space between

space above

space below

space in

space out

rowdy space

space of good manners

disappointing space

elevating space

space numbed by insistence

space in authority over program

program as space generator

grandiose space

space invaded by light

light inferring space

space contingent upon light

connective space

perceptual space

perspectival space

dumb space

unresolved space

imperfect space

perfect space

promiscuous space

puritanical space

scary space

reassuring space

protective space

aggressive space

irrational space

ugly space

beautiful space

hiding space

space of rejection

ceremonial space

space of opportunity

overwhelming space

space as challenge

space opportunity

a failure of space

a celebration of space

space of speculation

space of celebration

complicated and complex space

space of the human condition

space of the architect





















The Knowlton School of Architecture takes a stand: architecture is by definition a public act. The public aspect of architecture permeates the building, promoting community outside to inside, inside to outside, inside to inside, upside to downside, crosswise, diagonally, under, over, close by, and over there.



EXTRUDED WALL

1,020 linear feet

52,710 square feet

956 linear feet of pinup surface

9,560 square feet of pinup surface

11 square feet of pinup surface per studio student

20,076 square feet of gypsum wall board

891 linear feet of perimeter skylight



The wall is simple/extruded.

The wall is complex.

It describes the boundaries of the site but it is interrupted, pierced, sliced, cut, undercut, disturbed. It floats, suspended above the line of its demarcation. It announces the presence of the studios at the same time that it hides the studios. The wall's interior surface, in effect, is a vertical forum. It carries and provides the potential for a new format for architectural discourse. For a discipline distinguished by the visual and tactile, it presents the opportunity of yet-understudied forms of presentation. Its imperfection as a vehicle for communication may prompt creative means of communication; that is its greatest potential. If the wall is not used up in the most aggressive way, then it is simply a failure to communicate. If it is radically used/abused, it should be considered a roaring success. If no one rips out the lay-in-tile ceiling, I will be disappointed.

The undulating wall/shroud/skin-wall is incomplete and imperfect. Cuts, rents, slices, additions, and subtractions make it permeable; inside to outside, outside to inside, inside to outside to inside to outside.

The wall:

is undulating and fluid

is massive

is thin as paper

is weightless

is stone clad

is solid

is not solid

is extruded

is a ribbon with right angles

is a vertical forum

locates the studios

hides the studios

is a giant working surface for the studios

can empower the students

can terrorize the students

makes demands

sheds light on the matter

hangs around

*is decidedly ambivalent in its relationship to a purely conceptual
construct*

presents and projects the presence of the studios to the street

is a projector

is a projection surface

poses the question of its creative uses

should be used up

will weather















TG: I know what the answer you are supposed to give to this question, but given your reservations about the material (marble) at the beginning, do you feel that the building has been compromised?

MS: I am certain that this building has not been compromised. It has a richness of texture and shadow that would not be as legible with a darker material.

BW: There were detractors who said that is going to be the ugliest building ever. I now know that many of those people are requesting little pieces of marble for their desks.

DY: I do not think it is compromised either. I am quite comfortable with the fact that you cannot quite place it, that it is a bit of an enigma. Some times I see a building with classical references that is clad in white marble. At other times, it exhibits much more contemporary affiliations. That is okay. If I

could pin it down, if I could state with confidence that it is simply a contemporary or traditional building, it would be less satisfying.

ME: The constant change of perception is a crucial component for all of us. The surface has vitality.

TG: How would you characterize the effects of the building with reference to your initial ambitions of a strong form and aggressive engagement with the site?

MS: I would say exuberant rather than aggressive. I think that this building is better in its context than those previous designs. It is both highly contextual, and not, at the same time.

For me, a school of architecture should be enduring as opposed to fashionable. Its effects should not wear off. This building will be in place for a long time, perhaps a hundred years, and

architecture is going to change dramatically over that time. I would like to think that the building will sustain itself over that time. And I think the only way a building can do that is by embodying an array of readings.

RL: Can you think of another school of architecture that does that?

MS: There are not many. I think Mies van der Rohe's Crown Hall at IIT does that fairly well. Gund Hall at Harvard is also a very good building, though incredibly controversial. Some hate that building with a passion; others think it is a fantastic place to work. The building elicits a huge range of responses.

RL: What about Yale?

ME: Knowlton is a little like Yale in that one discovers a range of spatial conditions within. There is much for an architecture student to learn, both spa-

tially and materially from Knowlton. The same is true at Yale.

MS: While working on Laban, Dave Hickey had an idea that architecture should produce an initial feeling of "Huh?" followed by "Wow!" rather than the reverse. I am not sure we achieved that effect in Laban, but Knowlton Hall begins to approach it.

TG: Will we see that tendency pursued in future work?

MS: When you look at our competition submittals, you will see, for the most part, a series of exuberant projects. You could say that our fantasy is to make buildings that raise more questions than they answer, not in a shocking way but in a solidly architectural way.







CREDITS

Client Austin E. Knowlton School of Architecture, The Ohio State University, Columbus, Ohio: Robert S. Livesey, Director Jill Morelli, University Architect Scott Conlon, Senior Project Manager	Design Architects Mack Scogin Merrill Elam Architects, Atlanta, Georgia: Mack Scogin and Merrill Elam, Principals David Yocum, Project Architect Brian Bell John Trefry Penn Ruderman Barnum Tiller Cecila Tham Jeffrey Collins Kevin Gotsch Margaret Fletcher	Associate Architects Wandel and Schnell, Architects, Inc., Columbus, Ohio: Bob Wandel, Principal in Charge Cissy Wong, Project Architect Alan Sulser Ivan Amy Lannetta Vader Yanitza Brongers Kristen Poldemann	Interiors Mack Scogin Merrill Elam Architects Wandel and Schnell, Architects, Inc. Interior Furnishings: Suzanne Toney and Amy Dupler	Landscape Architect Michael Van Valkenburgh Associates, Cambridge, Massachusetts: Michael Van Valkenburgh Matt Urbanski Laura Solano Gullivar Shepard Brian Bare Jennifer Pindyck	Lighting Design Mack Scogin Merrill Elam Architects Ramon Luminance, Atlanta, Georgia: Ramon Noya	Structural Engineering Lantz, Jones, Nebraska, Columbus, Ohio: Bill Lantz Eric Messerly David Schoeff Ken Siegfried	Mechanical/Electrical/Plumbing Engineer HAWA Incorporated, Columbus, Ohio: Trent Tiffany Doug Coffey Jim Clark Ed Turner Tammy Stecklow	Civil Engineer Bird & Bull Engineers and Surveyors, Columbus, Ohio: Dave Bray	General Contractor P. J. Dick, Inc., Columbus, Ohio: Barry Bandura Jeff Smith Todd Safranek Dale Morgan Bob Meadway Jim Trump Barbara Pinnix	Subcontractors to General Contractor: Demolition: Lowendick & Sons Demolition Surveyor: Bird & Bull Engineers and Surveyors Earthwork: George J. Igel & Co. Caissons: Parks Drilling Co. Post Tensioning: P. T. Systems Scaffolding: Safeway Concrete: Arrow Concrete Company Concrete Forming and Pouring: P. J. Dick, Inc. Concrete Slabs: Mansfield Concrete Masonry: Harris Masonry Marble: Vermont Marble
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